



DEPARTMENT OF
ECOLOGY
State of Washington

Exceptional Event Demonstration for September 2017 PM₁₀ Exceedances Due to Wildfires

*At Kennewick and Yakima, WA
Washington Department of Ecology*

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For more information contact:

Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600
Phone: 360-407-7528

Washington State Department of Ecology – www.ecology.wa.gov

- Headquarters, Olympia 360-407-6000
- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Olympia 360-407-6300
- Central Regional Office, Union Gap 509-575-2490
- Eastern Regional Office, Spokane 509-329-3400

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Exceptional Event Demonstration for September 2017 PM10 Exceedances Due to Wildfires

At Kennewick and Yakima, WA

By Caroline (Ying) Sun and Jacob Berkey

Air Quality Program
Washington State Department of Ecology
Olympia, Washington

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Acronyms and Abbreviations

| | |
|--------------------------|--|
| AQS..... | Air Quality System |
| BCAA | Benton Clean Air Agency |
| CFR | Code of Federal Regulations |
| Ecology | Washington State Department of Ecology |
| EER | Exceptional Events Rule |
| EPA..... | U.S. Environmental Protection Agency |
| FEM | Federal Equivalent Method |
| FRM | Federal Reference Method |
| KENMETA | Kennewick Metaline Avenue Monitoring Station |
| MODIS | Moderate Resolution Imaging Spectroradiometer |
| mb | Millibar |
| NPM _{2.5} | Nephelometer fine particulate matter |
| NAAQS | National Ambient Air Quality Standards |
| NRCS | Natural Resources Conservation Service |
| NWS | National Weather Service |
| PM | Particulate Matter |
| PM ₁₀ | Particulate matter with an aerodynamic diameter of less than 10 micrometers |
| PM _{2.5} | Particulate matter with an aerodynamic diameter of less than 2.5 micrometers |
| SPM..... | Special Purpose Monitor |
| YAK4S..... | Yakima-4th Ave S monitoring station |
| YRCAA..... | Yakima Regional Clean Air Agency |

Executive Summary

A widespread regional wildfire event caused particulate pollution levels to exceed the PM₁₀ National Ambient Air Quality Standard (NAAQS) at the Kennewick Metaline Road monitoring station (KENMETA) and Yakima-4th Ave S monitoring station (YAK4S) on September 5, 6 and 7, 2017. Washington State Department of Ecology (Ecology) documented this event and provides sufficient evidence that the measurements qualify as exceptional events under the USEPA 2016 Exceptional Event Rule (EER). Ecology requests EPA to exclude the six PM₁₀ exceedances at Kennewick and Yakima from regulatory decisions.

This regional wildfire event impacted all of Washington state, including Kennewick and Yakima. Ecology issued air quality alerts and the National Weather Service and City of Yakima relayed the messages for Kennewick and Yakima during the September 2017 event. The extreme wildfire event caused elevated 24-hour PM₁₀ readings at Kennewick and Yakima on September 5, 6 and 7, 2017 which exceeded the PM₁₀ NAAQS.

The EER allows exclusion of qualifying NAAQS exceedances from regulatory decisions, upon EPA approval. Without exclusion of these exceedances, Kennewick and Yakima would violate the PM₁₀ NAAQS.

Ecology developed this demonstration as required by the EER. Ecology determined that the extreme wildfire event caused the PM₁₀ exceedances at Kennewick and Yakima on September 5, 6, and 7, 2017.

Ecology requests EPA to evaluate Ecology's assessment and agree to exclude the 24-hour PM₁₀ values for September 5, 6, and 7, 2017, when making regulatory decisions using the data from Kennewick and Yakima monitors.

Introduction

Ecology submits this exceptional event demonstration for the exceedances of the PM₁₀ national ambient air quality standard (NAAQS) that occurred on September 5, 6, and 7, 2017 in Kennewick and Yakima, Washington. This document presents evidence and requests EPA's concurrence with this demonstration to exclude these values from regulatory decisions for both areas.

Smoke from wildfires in Northern California, Oregon, Idaho, Montana, and Washington impacted nearly all of Washington in early September 2017. The strong upper-level ridge, coupled with dry conditions at the beginning of September, caused rapid fire growth which led to increased smoke production. Stagnant conditions trapped the smoke, which continued to accumulate each day that the ridge was in place.

The smoke from wildfires caused the PM₁₀ concentrations to exceed the 24-hour PM₁₀ NAAQS of 150 µg/m³ at the Kennewick Metaline Road monitoring station (KENMETA, Air Quality System site number 53-005-0002, POC 3) and Yakima-4th Ave. S monitoring station (YAK4S, Air Quality System site number 53-077-0009, POC 3)¹ on September 5, 6 and 7, 2017 (See Table 1 below).

Table 1 PM₁₀ Exceedances at Kennewick and Yakima on September 5, 6 and 7

| Date | Kennewick 24-hour PM₁₀, µg/m³ | Yakima 24-hour PM₁₀, µg/m³ |
|-------------------|--|---|
| September 5, 2017 | 292 | 215 |
| September 6, 2017 | 238 | 206 |
| September 7, 2017 | 212 | 197 |

EPA adopted the Exceptional Event Rule (EER) on March 22, 2007 (EPA, 2007) and revised the rule on September 30, 2016. EPA developed this rule to ensure adequately controlled areas were not penalized for events beyond their controls. The EER provides criteria and processes for states to demonstrate and for EPA to approve/disapprove under these circumstances. Ecology developed this demonstration to meet the following requirements of the 2016 EER to exclude the PM₁₀ exceedances on September 5, 6, and 7, 2017 at Kennewick and Yakima from regulatory decisions of PM₁₀ NAAQS (EPA, 2016):

- Determination of regulatory significance of writing this demonstration for the PM₁₀ exceedances;
- A narrative conceptual model to describe the event and discuss how the emissions from the events led to the exceedance/violation;

¹ Yakima PM₁₀ monitor was switched from POC 1 to POC3 in September 2015.

- A demonstration that there exists a clear causal relationship between the measurement and the event;
- Analyses comparing the event-influenced concentration to concentrations at the same monitoring site at other times to support the clear causal relationship criteria;
- Evidence that the event was not reasonably controllable or preventable; and
- Evidence that the event was a human activity that is unlikely to recur at a particular location, or was a natural event.

Ecology also fulfilled the following procedural requirements:

- Provide prompt public notification whenever air quality concentrations exceed or Ecology expects them to exceed an applicable NAAQS;
- Create initial event description and flagging the associated data in EPA's Air Quality System (AQS);
- Engage in the Initial Notification of Potential Exceptional Event process unless waived by EPA; and
- Provide opportunity for public comment for a minimum of 30 days

Ecology requests EPA to concur with our determination that the wildfire event qualifies as an exceptional event under the EER and EPA should exclude the six PM₁₀ exceedances listed in Table 1 from regulatory decisions for the PM₁₀ NAAQS in Kennewick and Yakima, Washington.

Regulatory Significance

As identified in 40 CFR §50.14(a)(1)(i), the 2016 EER applies to the treatment of data showing exceedances of NAAQS for certain types of regulatory determinations. Ecology has discussed with EPA Region 10 during the initial notification process and determined the PM₁₀ exceedances listed in Table 1 are regulatorily significant and an exceptional event demonstration is necessary to request exclusion of these data.

The Kennewick PM₁₀ monitor is the regulatory compliance monitor for Wallula PM₁₀ Maintenance Area while the Yakima PM₁₀ monitor is the regulatory compliance monitor for Yakima PM₁₀ Maintenance Area. Both maintenance areas are in the process of preparing for the second 10 year maintenance plan. As shown in Table 2 below, the 2015-2017 PM₁₀ design value at Kennewick and Yakima is 1.7 and 1.6, respectively, with wildfire influenced exceedances included, which caused PM₁₀ NAAQS violations at both locations. Excluding these wildfire influenced PM₁₀ exceedances through this EE Demo, the design value drops to 0.66 and 0, respectively, at Kennewick and Yakima. This brings both maintenance areas into compliance with the PM₁₀ NAAQS, enabling them to submit their second 10 year maintenance plans. This meets the scopes described under the 40 CFR §50.14(a)(1)(i).

Table 2 2015 to 2017 PM₁₀ NAAQS design value (DV) with and without wildfire influenced exceedances in Kennewick and Yakima

| | Kennewick | Yakima |
|--|-----------|--------|
| DV with wildfire influenced exceedances | 1.7 | 1.6 |
| DV without wildfire influenced exceedances | 0.66 | 0 |

Conceptual Model

In early September 2017, Kennewick and Yakima PM₁₀ monitors received smoke transported from wildfires located in Washington, Northern California, Oregon, Idaho, and Montana. A strong upper-level ridge caused stagnant atmospheric conditions and kept the smoke in place for three days. The KENMETA and YAK4S monitors recorded exceedances of the 24-hour PM₁₀ NAAQS on Sept. 5, 6, and 7 as a result of this event. The conceptual model describes the source of the particulate matter that impacted the two monitors, the transport weather conditions that brought the aerosols to the monitors, and the timing and magnitude of the event's impact on the monitors.

Overview

Wildfires occur every year in the western United States during the summer and fall. In 2017, over 1.8 million acres burned in Idaho, Washington, and Oregon, while more than 1.3 million acres burned in Montana and more than 1.2 million acres burned in California (Table 3) (National Interagency Fire Center, 2017). More than 1.3 million acres burned in Montana and an additional 3 million acres burned in the Canadian provinces of British Columbia and Alberta Government of British Columbia, 2017; Canadian Interagency Forest Fire Centre Inc (CIFFC), 2017). During the first full week of September, a strong upper level ridge pattern transported smoke from many of

these fires to Washington and trapped the smoke in a multi-day stagnation event. Smoke accumulated during a three-day period and negatively affected the air quality throughout the northwest United States. The air quality monitors at Kennewick and Yakima, WA recorded daily PM₁₀ concentrations above the 24-hour NAAQS on September 5, 6, and 7, 2017.

Table 3. Wildfire acres burned in 2017.

| State/Province | Acres Burned in 2017 |
|------------------|----------------------|
| Washington | 404,223 |
| Oregon | 714,520 |
| Idaho | 686,262 |
| Montana | 1,366,498 |
| California | 1,266,224 |
| British Columbia | >2,965,265 |
| Alberta | 118,786 |

Figure 1 below shows the daily (blue line) and 5-day average (red line) acres burned in the source areas listed in Table 3 throughout the 2017 fire season from June to September 2017. The acres burned peaked in both early August and early September. The PM₁₀ exceedances at both Kennewick and Yakima on September 5, 6, and 7, 2017 correspond with the spike in acres burning during early September 2017.

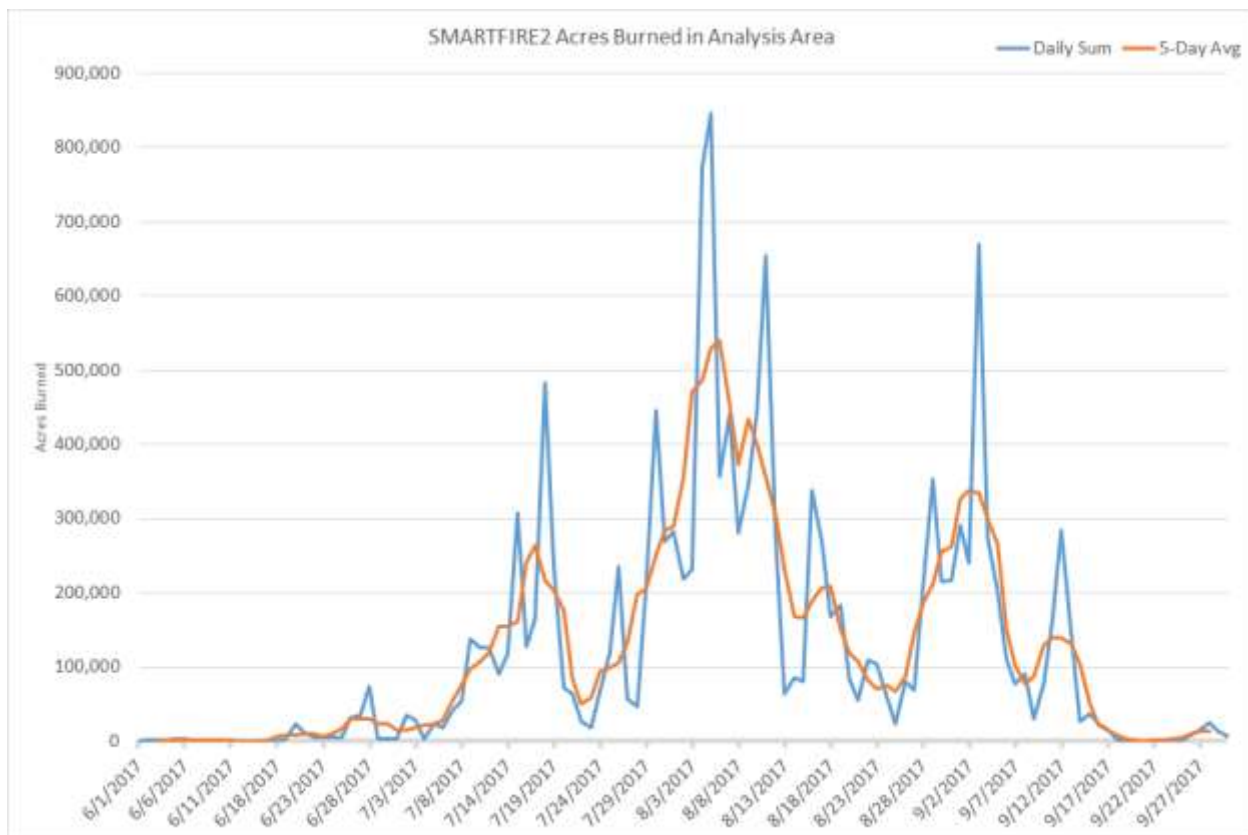


Figure 1 Daily and 5-day average acres burned for 2017 fire season

Table 4 and Table 5 below show the average annual anthropogenic sources emissions in Benton County and Yakima County. Table 6 shows the average daily wildfire emissions from the event days and the two surrounding days. The average annual anthropogenic PM₁₀ emissions were around 20% of the wildfire PM₁₀ emissions which measured around 138,000 tons per day. This was significantly higher than anthropogenic emissions and demonstrates wildfire was the main contributor of the PM₁₀ exceedances at Kennewick and Yakima on September 5, 6, and 7, 2017.

Table 4 Annual Anthropogenic Source Emissions in Benton County

| Category | PM10 (Tons/Yr) | PM2.5 (Tons/Yr) |
|---|----------------|-----------------|
| Dust from Construction | 5,422 | 542 |
| Dust from Agricultural Tilling and Harvesting | 3,777 | 734 |
| Dust from Livestock | 1,873 | 288 |
| Dust from Roads | 948 | 179 |
| Residential Outdoor Burning: yard waste, trash | 206 | 189 |
| Residential Wood Combustion | 179 | 179 |
| On-road Mobile Vehicles | 173 | 99 |
| Agricultural and Silvicultural Burning | 122 | 110 |
| Non-road Equipment and Vehicles | 72 | 69 |
| Commercial Cooking | 57 | 53 |
| Large Facilities (Major Point Sources) | 52 | 22 |
| Industrial/Commercial/Institutional Fuel Combustion | 41 | 29 |
| Locomotives | 32 | 31 |
| Miscellaneous | 11 | 9.2 |
| Recreational Boats | 6.5 | 6.0 |
| Aircraft (Landing & Take-Off) | 2.5 | 2.0 |
| Residential non-Wood Fuel | 0.34 | 0.29 |
| Commercial Marine Vessels | 0.04 | 0.04 |
| TOTAL | 12,975 | 2,540 |

Table 5 Annual Anthropogenic Source Emissions in Yakima County

| Category | PM10 (Tons/Yr) | PM2.5 (Tons/Yr) |
|--|----------------|-----------------|
| Dust from Roads | 4,614 | 615 |
| Dust from Livestock | 4,159 | 680 |
| Dust from Construction | 3,352 | 337 |
| Agricultural and Silvicultural Burning | 1,477 | 1,258 |
| Dust from Agricultural Tilling and Harvesting | 1,442 | 281 |
| Residential Wood Combustion (Home Heating) | 479 | 479 |
| Residential Outdoor Burning: yard waste, trash | 351 | 321 |

| Category | PM10 (Tons/Yr) | PM2.5 (Tons/Yr) |
|---|-------------------|-----------------|
| On-road Mobile Vehicles | 238 | 141 |
| Commercial Cooking | 82 | 76 |
| Non-road Equipment and Vehicles | 79 | 75 |
| Industrial/Commercial/Institutional Fuel Combustion | 71 | 46 |
| Large Facilities (Major Point Sources) | 18 | 3 |
| Miscellaneous | 16 | 13 |
| Locomotives | 4.5 | 4.4 |
| Aircraft (Landing & Take-Off) | 4.3 | 3.6 |
| Recreational Boats | 4.1 | 3.8 |
| Residential non-Wood Fuel (Home Heating) | 1.4 | 1.2 |
| Commercial Marine Vessels | 0 | 0 |
| TOTAL | 16,393 | 4,340 |

Table 6 Average Daily Wildfire Emissions from All Source Areas from September 3-7, 2017

| State | PM ₁₀ (Tons/Day) | PM _{2.5} (Tons/Day) |
|---|-----------------------------|------------------------------|
| California | 23,963 | 20,308 |
| Idaho | 20,867 | 17,684 |
| Montana | 43,059 | 36,490 |
| Oregon | 24,019 | 20,355 |
| Washington | 18,284 | 15,495 |
| Wyoming | 84 | 71 |
| Canada | 8,093 | 6,859 |
| All WF in Activity Analysis Area | 138,369 | 117,262 |

There were also numerous media reports on this wildfire event and its air quality impacts. We listed some of the media reports in Appendix B. In addition, Governor Inslee declared a statewide wildfire emergency on September 2, 2017 due to high risk of severe wildfires throughout the State of Washington (Inslee, 2017). Appendix E includes the statewide wildfire emergency declaration.

General Weather Conditions

During the period of September 3-8, 2017, the entire Pacific Northwest was under a strong upper level ridge pattern. This pattern began to establish itself on September 3, 2017. Figure 2 (a-d) shows the progression of the ridge pattern at the 500 Millibar (mb) level. The ridge was strongest on September 5 with high pressure over eastern Oregon indicated by 500 mb heights of 5940 m. September 6 and 7 were very similar, with the ridge remaining in place and the local high parked over the tri-state (Oregon, Washington, and Idaho) boundary. By the 8th, the ridge began to break as a low pressure system approached the coast of northern California. This led to

increased mixing heights as well as stronger surface and transport winds from the southwest which aided in clearing smoke from Eastern Washington.

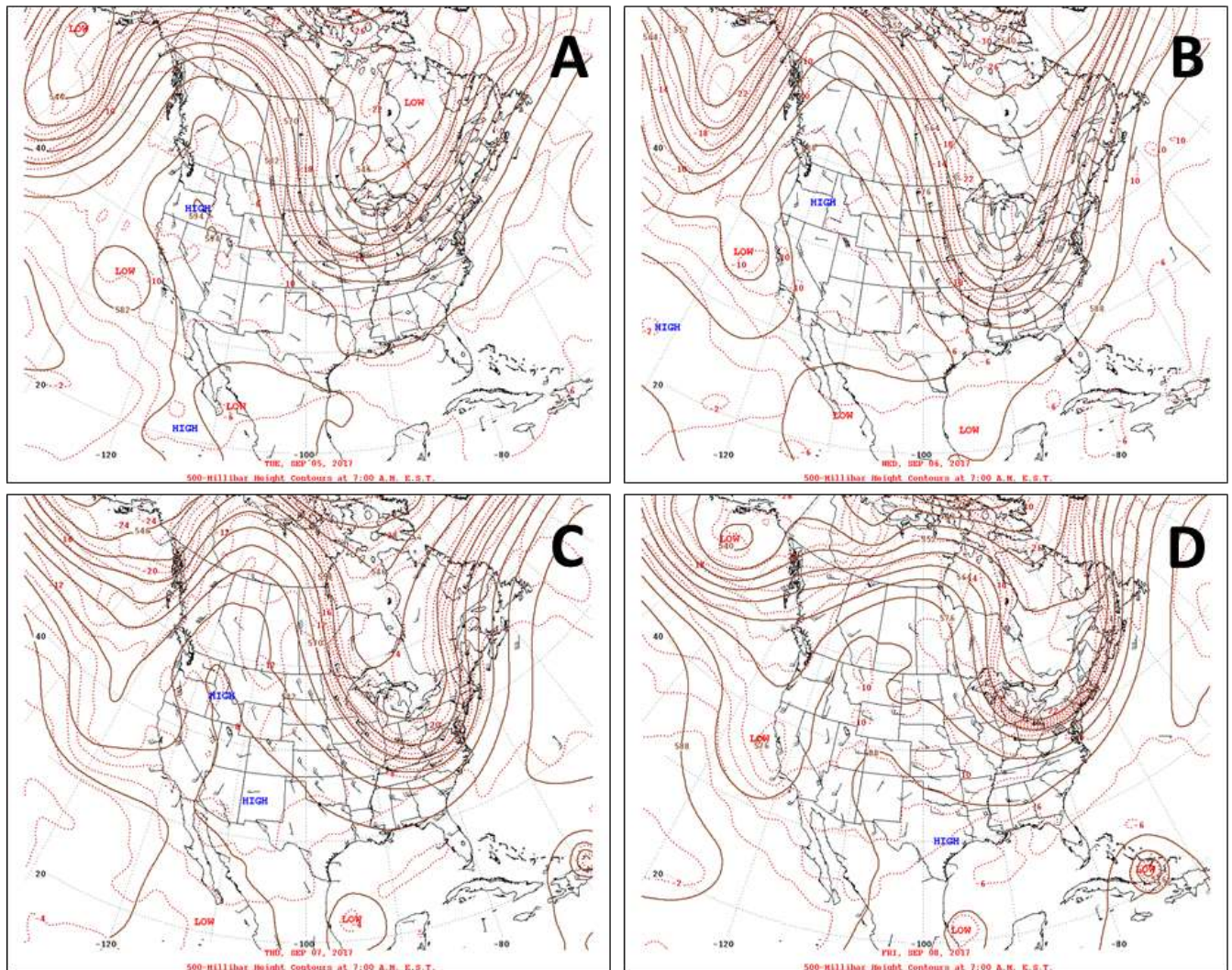


Figure 2 September 5-8, 2017 500 mb height contours over North America showing daily progression of upper level ridge over the Pacific Northwest: A) Sept. 5, B) Sept. 6, C) Sept. 7, D) Sept. 8 (National Oceanic and Atmospheric Administration, 2017).

The vertical wind profiler in Troutdale, OR, located at the west end of the Columbia River Gorge shows the progression of airflows up to 6 km above ground level during this period (Figure 3). Heights/times with no wind barbs were when the profiler's return signal was too weak, possibly because of dense smoke aloft.

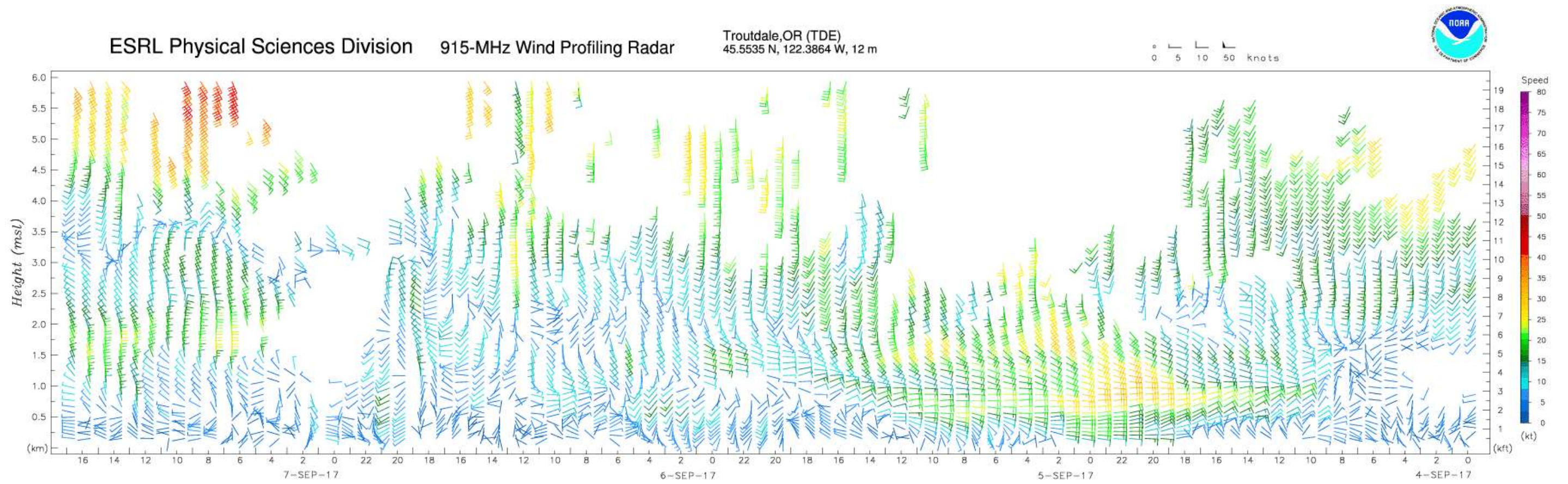


Figure 3 Troutdale, OR wind profiler from 3-8 September 2017. Read from right to left.

The profiler showed light surface winds from the evening of September 3, 2017 with stronger south/southwest winds from around 2km and above. A low-level jet brought east winds from the morning of September 4th through the afternoon of September 5th, which decoupled from the upper level winds. Assuming this decoupling occurred at the top of the mixing layer, it appeared that a subsidence inversion was present during this event, with mixing heights dropping from around 2km to below 1.5km by September 7, 2017.

Low level east winds carried smoke from Idaho and Montana into the region, after which SSW upper level winds transported Oregon and California smoke and forced the smoke down to the surface by the subsidence inversion. Surface winds then slackened and made the smoke from all these sources linger in the area until the ridge began to degrade on September 8, 2017.

The strong ridge, coupled with dry conditions at the beginning of September, caused rapid fire growth which led to increased smoke production. The smoke, trapped by stagnant conditions, continued to accumulate each day the ridge was in place.

Source Area and Affected Region

The series of true color satellite photos with HYSPLIT back trajectories for Kennewick and Yakima in Figure 4 through Figure 7 show the presence and movement of smoke during the episode. On September 4, the winds transported smoke mainly from Northern California, Western Oregon and Washington local fires to the Kennewick and Yakima monitors. On September 5, the strong upper level ridge trapped smoke in Washington, and the east wind also transported smoke from Idaho and Montana to Washington. On September 6 and 7, thick smoke covered all three Pacific Northwest states, Washington, Oregon and Idaho, as well as western Montana. The wind barbs on Figure 4 through Figure 7 showed no or very light wind that led to low smoke dispersion.

Figure 8 shows all large wildfires throughout the US on September 6, 2017. Ecology identified the wildfires that impacted Kennewick and Yakima monitors on September 5, 6, and 7, 2017 and listed them in 0 which corresponds with the legend on Figure 8.

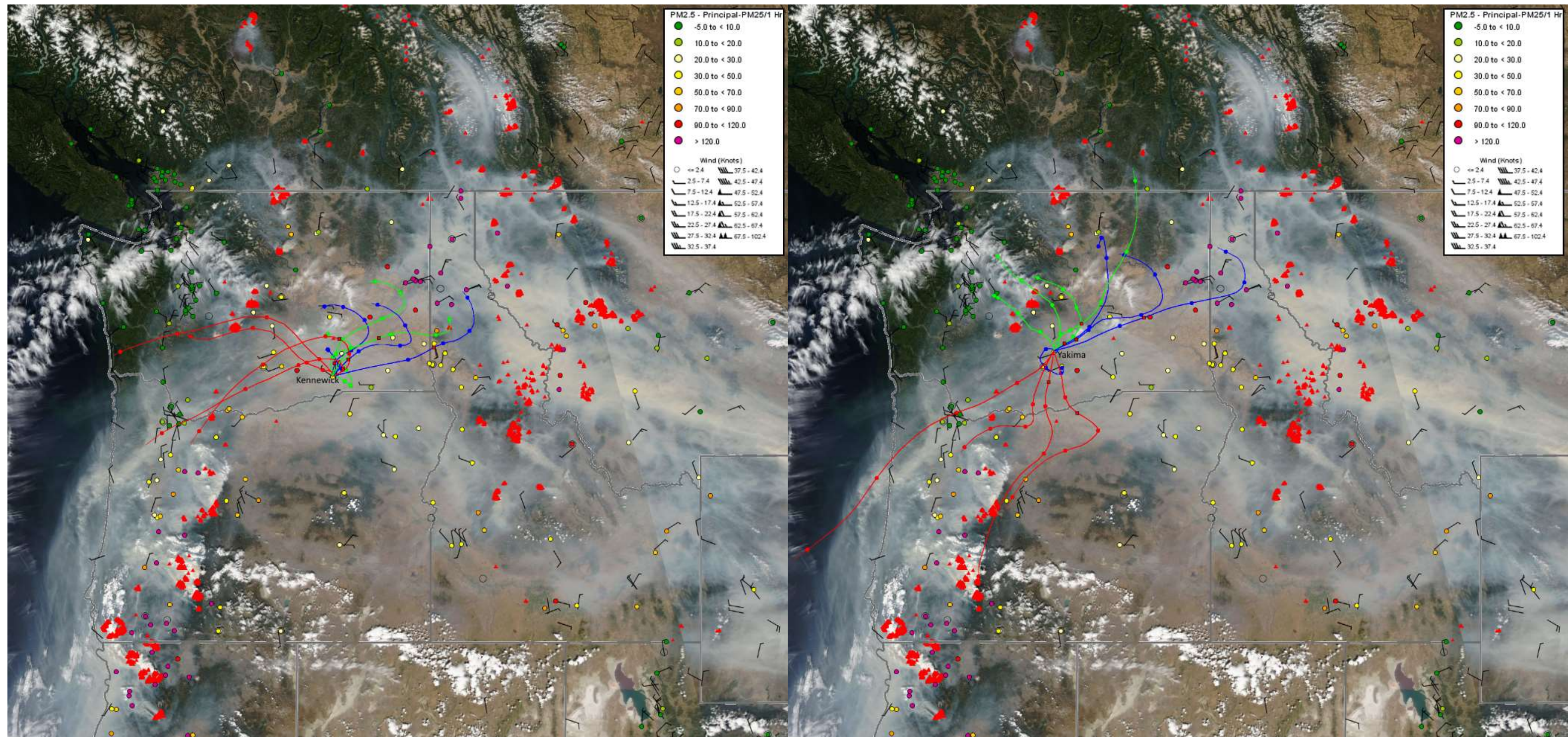


Figure 4. 24-hour HYSPLIT back trajectories at 50 (green), 500 (blue), and 2000 (red) meter starting heights on September 4, 2017 for Kennewick (left) and Yakima (right). Four back trajectories are shown starting at 4 am, 10 am, 4 pm, and 10 pm PST. HMS-detected hot-spots are shown as red triangles. The background layer is Aqua/MODIS imagery (~2 pm LT). The wind barbs and hourly PM2.5 shown are monitored values at 2 PM PST.

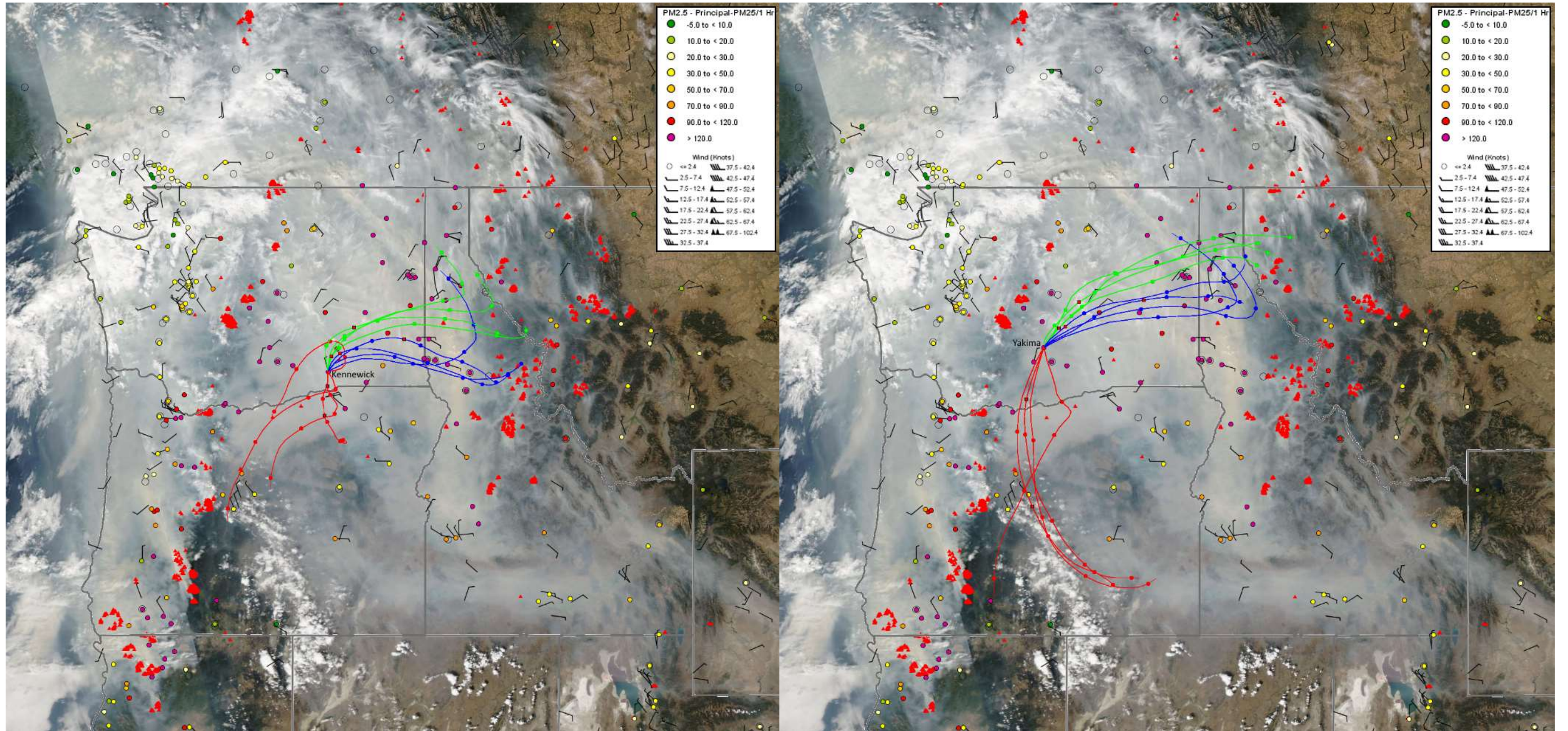


Figure 5. 24-hour HYSPLIT back trajectories at 50 (green), 500 (blue), and 2000 (red) meter starting heights on September 5, 2017 for Kennewick (left) and Yakima (right). Four back trajectories are shown starting at 4 am, 10 am, 4 pm, and 10 pm PST. HMS-detected hot-spots are shown as red triangles. The background layer is Aqua/MODIS imagery (~2 pm LT). The wind barbs and hourly PM_{2.5} shown are monitored values at 2 PM PST.

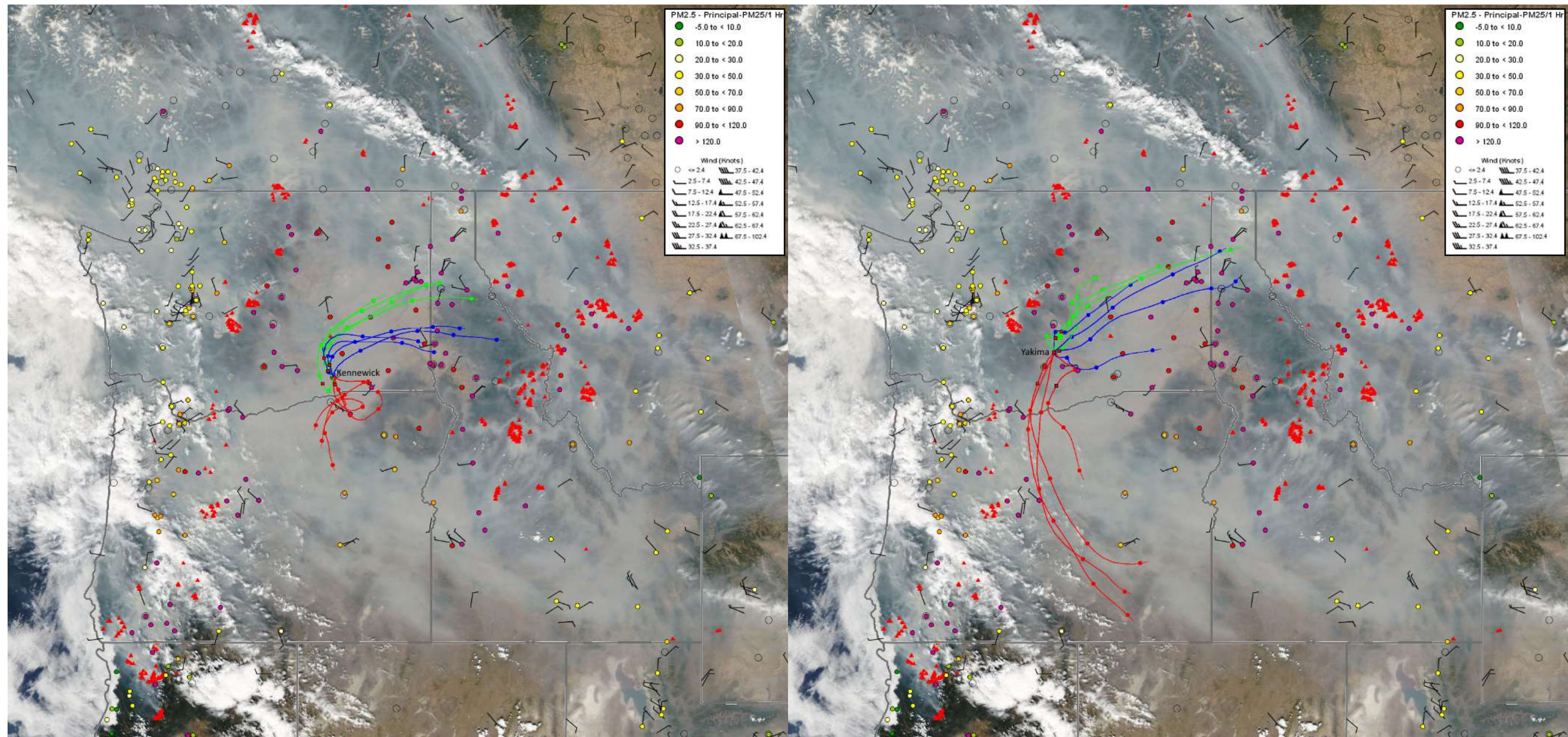


Figure 6. 24-hour HYSPLIT back trajectories at 50 (green), 500 (blue), and 2000 (red) meter starting heights on September 6, 2017 for Kennewick (left) and Yakima (right). Four back trajectories are shown starting at 4 am, 10 am, 4 pm, and 10 pm PST. HMS-detected hot-spots are shown as red triangles. The background layer is Aqua/MODIS imagery (~2 pm LT). The wind barbs and hourly PM2.5 shown are monitored values at 2 PM PST.

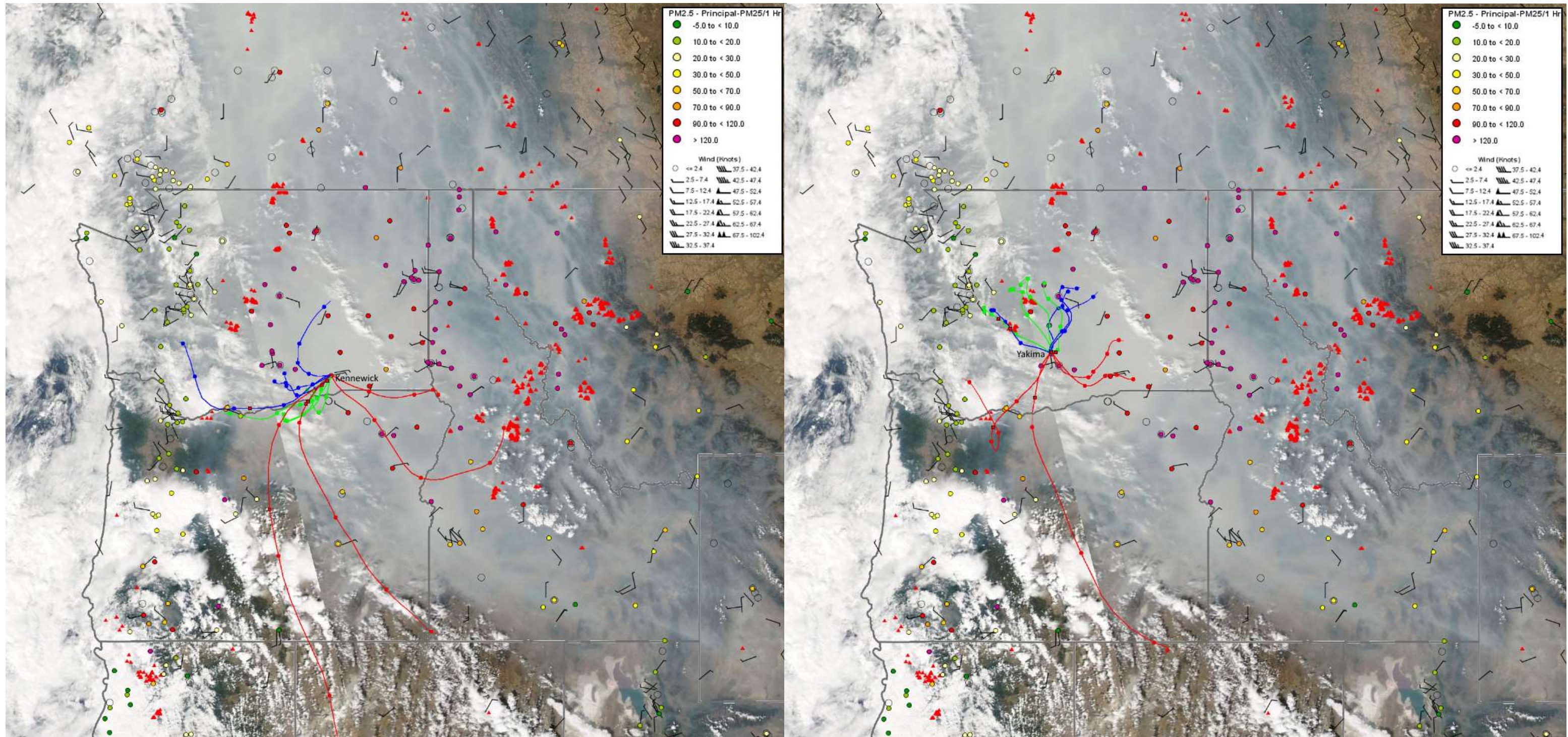
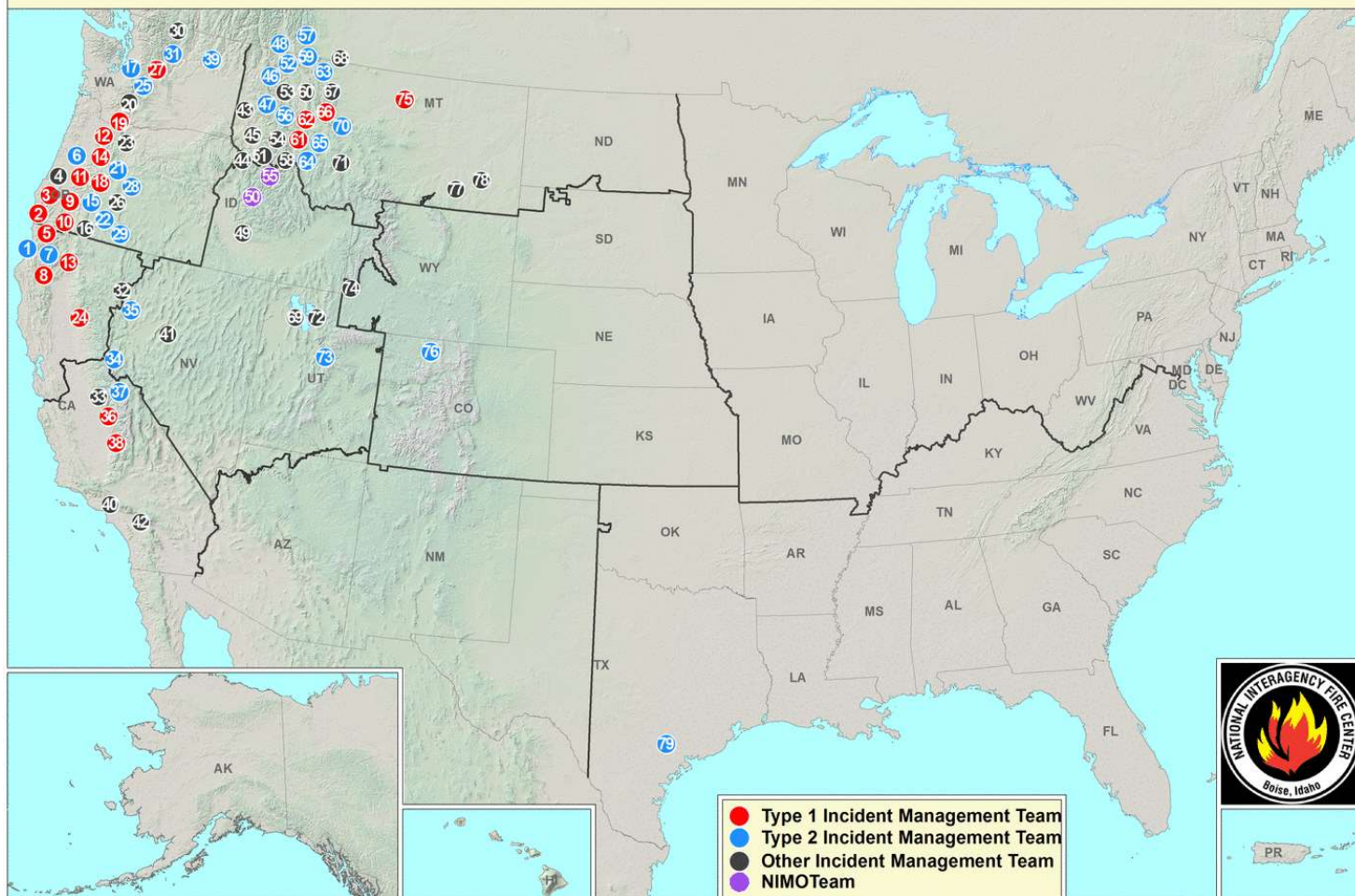


Figure 7. 24-hour HYSPLIT back trajectories at 50 (green), 500 (blue), and 2000 (red) meter starting heights on September 7, 2017 for Kennewick (left) and Yakima (right). Four back trajectories are shown starting at 4 am, 10 am, 4 pm, and 10 pm PST. HMS-detected hot-spots are shown as red triangles. The background layer is Aqua/MODIS imagery (~2 pm LT). The wind barbs and hourly PM2.5 shown are monitored values at 2 PM PST.

Current Large Incidents

September 06, 2017



- | | | | |
|-------------------------|--------------------------|------------------------|----------------------|
| 1 ORLEANS COMPLEX | 21 MILLI 0843 CS | 41 TUNGSTEN | 61 LOLO PEAK |
| 2 CHETCO BAR | 22 HIGH CASCADES COMPLEX | 42 PALMER | 62 LIBERTY |
| 3 HORSE PRAIRIE | 23 INDIAN CREEK | 43 STRYCHNINE | 63 SPRAGUE |
| 4 FALCON COMPLEX | 24 PONDEROSA | 44 HANOVER | 64 MEYERS |
| 5 CA-KNF-006098 | 25 AMERICAN | 45 ANDYS HUMP | 65 SAPPHIRE COMPLEX |
| 6 JONES | 26 MCKAY 1035 NE | 46 MOOSE PEAK | 66 RICE RIDGE |
| 7 SALMON AUGUST COMPLEX | 27 JOLLY MOUNTAIN | 47 HIGHWAY 200 COMPLEX | 67 CRUCIFIXION CREEK |
| 8 HELENA | 28 NASH | 48 CARIBOU | 68 WOLVERINE FIRE |
| 9 UMPQUA NORTH COMPLEX | 29 JADE CREEK | 49 IMMIGRANT | 69 UINTAH |
| 10 MILLER COMPLEX | 30 DIAMOND CREEK | 50 BEARSKIN | 70 ALICE CREEK |
| 11 REBEL | 31 UNO PEAK | 51 MOOSE CREEK 1 | 71 CONROW |
| 12 WHITEWATER | 32 R-4 | 52 WEST FORK | 72 UINTAH |
| 13 FORK | 33 PEAK | 53 MCCULLY | 73 TANK HOLLOW |
| 14 POTATO HILL | 34 SLINKARD | 54 HIDDEN | 74 POLE CREEK |
| 15 STALEY | 35 TOHAKUM 2 | 55 HIGHLINE | 75 EAST FORK |
| 16 NORTH PELICAN | 36 MISSION | 56 SUNRISE | 76 DEEP CREEK |
| 17 NORSE PEAK | 37 RAILROAD | 57 ADAIR PEAK | 77 PAINTED HILL |
| 18 HORSE CREEK COMPLEX | 38 PIER | 58 NELSON CREEK | 78 RED BUTTE |
| 19 EAGLE CREEK | 39 BRIDGE CREEK | 59 GIBRALTER RIDGE | 79 HARVEY |
| 20 EAST CRATER | 40 LA TUNA | 60 BLUE BAY | |

Figure 8 Large wildfire incidents in the US on September 6, 2017. Source: NIFC.

Monitors Impact

The evidence presented in Sections 0 and 0 establishes that heavy smoke from regional wildfires impacted the Kennewick and Yakima monitors on September 5, 6, and 7, 2017. This wildfire event actually impacted all PM₁₀ monitors in Eastern Washington as shown in Table 7 (see Figure 9 for their locations).

Generally, 85 percent of particulate matter in smoke from fires is fine particulate matter (PM_{2.5}) (Battye & Battye, 2002)², while the mean PM_{2.5}/PM₁₀ ratios outside of exceptional events during the 2015-2017 period was around 50 percent. However, the PM_{2.5} concentrations recorded by the Kennewick correlated nephelometer (NPM_{2.5}) were only around 50 percent of the PM₁₀ concentrations during the event (See Table 7). Kennewick-Metaline uses a correlated nephelometer to estimate PM_{2.5} concentrations; this is not a regulatory compliance monitor and it is not suitable for comparison with the NAAQS. Ecology developed Kennewick's NPM_{2.5} correlation using a narrow dataset of wintertime concentrations ranging from 0-29 µg/m³. The 2017 wildfire event was from a different season and the PM_{2.5} values were several times higher than the data used to develop the correlation. In addition, Ecology developed Kennewick's NPM_{2.5} correlation on a logarithmic scale, which can cause underestimation at high concentrations, particularly outside the range used to develop the correlation. Therefore, PM_{2.5} concentrations recorded by the nephelometer at Kennewick have a high degree of uncertainty. However, as shown in Figure 12, PM₁₀ concentrations were well-correlated with NPM_{2.5} levels at Kennewick during this event as smoke accumulated in the area, even though the nephelometer likely underestimated PM_{2.5}.

The same wildfire event also impacted Yakima and Spokane and caused PM₁₀ exceedances on the same days. Both sites monitor PM_{2.5} with Federal Equivalent Method (FEM) Beta Attenuation Monitors (Met One BAM-1020s). Because BAM-1020s are Federal Equivalent Method (FEM) monitors, Ecology tested them in multiple environments across multiple seasons and they meet a higher standard of accuracy than correlated nephelometers. The PM_{2.5} concentrations recorded by the BAM-1020 monitors at Spokane and Yakima were all around 85 percent of the PM₁₀ concentrations during the event (See Table 7). Therefore, the data are consistent with smoke being a major contributor to the total PM₁₀ on those three days across eastern Washington.

² Equation 10 in EPA, AP-42, Volume I, Fifth Edition, Chapter 13 Miscellaneous Sources, [Development of Emissions Inventory Methods for Wildland Fire](#): (PM₁₀ = 1.18 × PM_{2.5}), which means that 85 percent of PM₁₀ from fires is PM_{2.5}.

Eastern Washington PM₁₀ Monitoring Sites and Maintenance Areas



Figure 9. Eastern Washington PM₁₀ monitoring stations and maintenance areas

**Table 7 24-Hour PM₁₀ Exceedances at Kennewick, Burbank, Yakima, Spokane and Colville
Comparing with 24-Hour PM_{2.5} on the Same Day**

| Date | 24-Hour PM ₁₀ µg/m ³ | 24-Hour PM _{2.5} (Nephelometer) µg/m ³ | 24-Hour PM _{2.5} (BAM-1020) µg/m ³ | PM _{2.5} to PM ₁₀ Ratio % |
|-----------|---|--|--|--|
| Kennewick | | | | |
| 9/5/2017 | 261 | 128.3 | | 49% |
| 9/6/2017 | 206 | 114.1 | | 55% |
| 9/7/2017 | 195 | 105.8 | | 54% |
| Burbank | | | | |
| 9/5/2017 | 292 | | | |
| 9/6/2017 | 238 | | | |
| 9/7/2017 | 212 | | | |
| Yakima | | | | |
| 9/5/2017 | 215 | | 184.6 | 86% |
| 9/6/2017 | 206 | | 173.3 | 84% |
| 9/7/2017 | 197 | | 166.4 | 84% |
| Spokane | | | | |
| 9/4/2017 | 168 | | 145.1 | 86% |
| 9/5/2017 | 223 | | 193.0 | 87% |
| 9/6/2017 | 214 | | 186.0 | 87% |
| 9/7/2017 | 227 | | 194.9 | 86% |
| Colville | | | | |
| 9/5/2017 | 216 | | | |

Summary

In early September 2017, an extended wildfire event transported regional wildfire smoke to the Kennewick and Yakima PM₁₀ monitors and impacted Washington. A strong upper level ridge remained in place over the Pacific Northwest for three days, limiting the vertical mixing and horizontal movement of the atmosphere. Particulate matter produced by numerous wildfires burning throughout the Pacific Northwest impacted the Kennewick and Yakima PM₁₀ monitors, causing exceedances of the 24-hours NAAQS on September 5, 6 and 7, 2017.

Clear Causal Relationship

The 2016 EER requires that states demonstrate that a clear causal relationship exists between the event that affected air quality and the monitored exceedance. We prepared this section according to the guidance provided in Table 1 “Example Clear Causal Relationship Evidence and Analyses” on 81 F.R. 68241 (October 3, 2016). The following facts demonstrate a clear causal relationship for this event for this exceedance:

- The comparison of event-related concentration to historical concentrations discussed in Section 0 supports the direct causal relationship between wildfire and the PM₁₀ exceedances.
- The NWS and City of Yakima relayed Ecology's Air Quality Alerts and indicated that the wildfire events caused air quality to reach unhealthy levels (See Appendix A).
- News reports described the wildfires and smoke impacts on all of Eastern Washington (See Appendix B).
- Back trajectories and satellite images (See Figure 4 through Figure 7) support that the wildfires from Northern California, Oregon, Washington, Idaho and Montana impacted the air quality in Kennewick and Yakima during the early September wildfire event.
- PM₁₀ concentration patterns corresponded directly to PM_{2.5} concentrations as the wildfire event progressed. Comparison of PM₁₀ concentration with PM₁₀ for days preceding and following the event in Section 0 of this demonstration showed that the PM₁₀ level at KENMETA only constantly exceeded the 150 µg/m³ NAAQS during the wildfire event (See Figure 12 and Figure 14).
- The PM_{2.5} to PM₁₀ ratio also supported that smoke was major contributor to the total PM₁₀ on those three days (See section 0).
- There were no high PM₁₀ days without high wind or wildfire events in the last five years since 2013 in both locations (See section 0).

The weight of evidence supports that the wildfire caused the PM₁₀ exceedances in Kennewick and Yakima on September 5, 6 and 7, 2017.

Comparison of Event-Related Concentration to Historical Concentrations

The 2016 EER requires states to compare the event-related concentration to the historical concentrations. We prepared this section according to the guidance provided in Table 2 "Evidence and Analyses for the Comparison to Historical Concentrations" from 81 F.R. 68242 (October 3, 2016). The information also serves as an important basis for the clear causal relationship criteria.

Comparison with Historical Data and Identified "High" Values

Table 2 from 81 F.R. 68242 (October 3, 2016) suggested comparing the concentrations on the claimed event days with historical data.

At Kennewick, records from the past five years show the 24-hour PM₁₀ concentrations only exceeded the federal PM₁₀ standard of 150 µg/m³ during high wind and wildfire events. Figure 10 below shows most recent five year 24-hour PM₁₀ data from 2013 to 2017 and we labeled all exceedances with dates. There were ten 24-hour PM₁₀ exceedances during the most recent five year period.

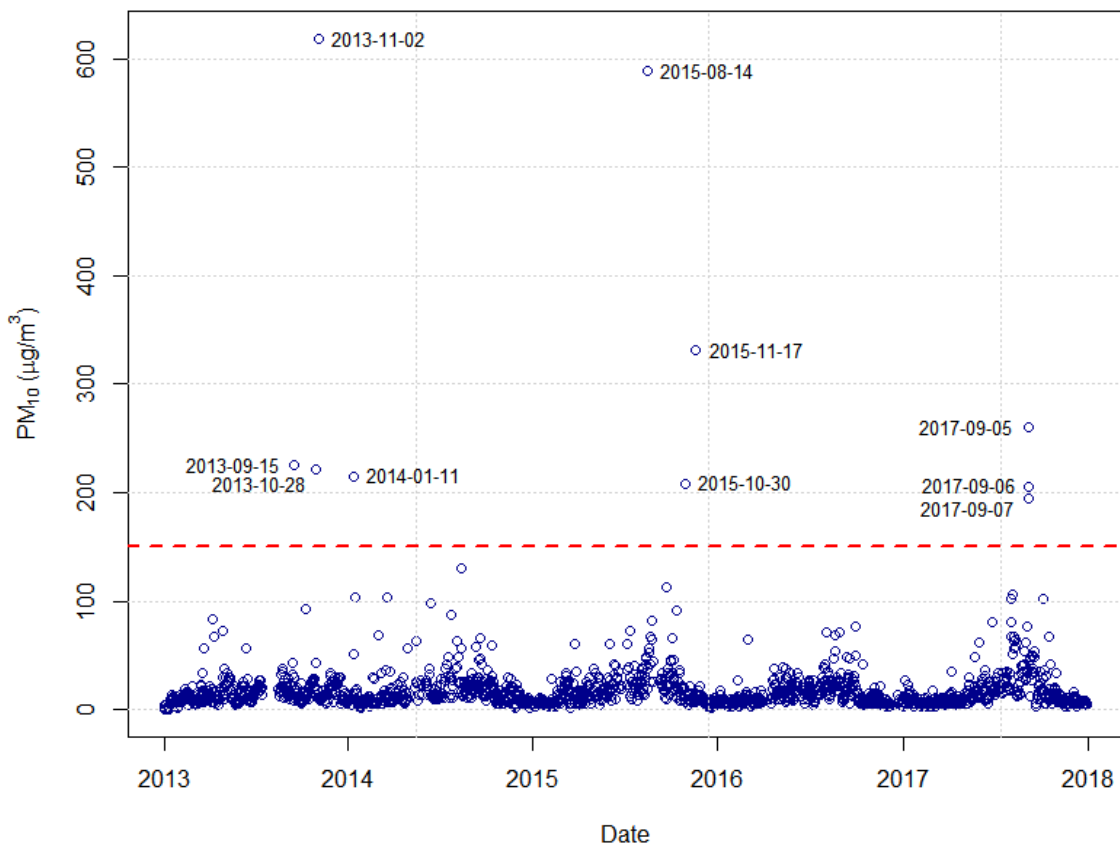


Figure 10. Kennewick 24-hour PM₁₀ concentrations by date, 2013-2017.

At Yakima, records over the past five years show the 24-hour PM₁₀ concentrations only exceeded the federal PM₁₀ standard of 150 µg/m³ during this wildfire event in September 2017. Figure 11 below shows the most recent five year 24-hour PM₁₀ data from 2013 to 2017 and we labeled all exceedances with dates.

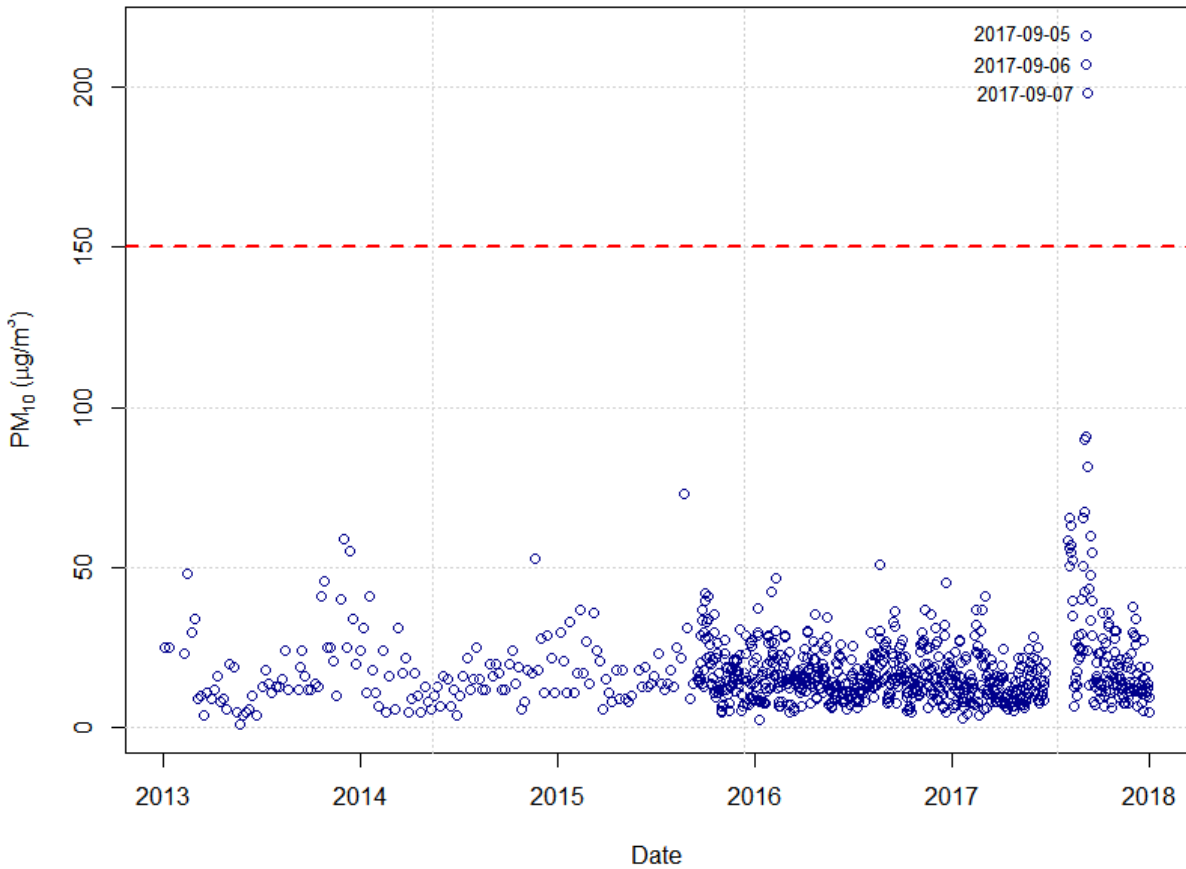


Figure 11. Yakima 24-hour PM₁₀ concentrations by date, 2013-2017.

Ecology flagged all PM₁₀ exceedances at Kennewick and Yakima in AQS, EPA’s official database, as caused by high wind dust or wildfire events.

- Kennewick: EPA concurred upon three exceedances in 2013 and one exceedance on August 14, 2015 for exclusion from regulatory decisions through high wind exceptional event demonstrations. The exceedance in 2014 and the other two in 2015 had sustained wind speeds over the 25 mph high wind threshold in the EER and therefore, Ecology suspected exceptional events to have caused those exceedances. Ecology also i-flagged all three exceedances caused by wildfire in 2017.
- Yakima: Ecology i-flagged all three exceedances caused by wildfire in 2017.

Table 8 below identifies and labels the “high” values (EPA, 2018; Ecology, 2016).

Table 8. Dates and values of exceedances from area monitors in Kennewick and Yakima, 2013 through 2018

| Exceedance Date | Location | 24-hr PM ₁₀ (µg/m ³) | High Value Status |
|--------------------|-----------|---|---------------------------------------|
| September 15, 2013 | Kennewick | 227 | High Wind Exceptional Event |
| October 28, 2013 | Kennewick | 224 | High Wind Exceptional Event |
| November 2, 2013 | Kennewick | 620 | High Wind Exceptional Event |
| January 11, 2014 | Kennewick | 216 | Suspected High Wind Exceptional Event |
| August 14, 2015 | Kennewick | 589 | High Wind Exceptional Event |
| October 30, 2015 | Kennewick | 208 | Suspected High Wind Exceptional Event |
| November 17, 2015 | Kennewick | 331 | Suspected High Wind Exceptional Event |
| September 5, 2017 | Kennewick | 261 | Suspected Wildfire Exceptional Event |
| September 6, 2017 | Kennewick | 206 | Suspected Wildfire Exceptional Event |
| September 7, 2017 | Kennewick | 195 | Suspected Wildfire Exceptional Event |
| September 5, 2017 | Yakima | 215 | Suspected Wildfire Exceptional Event |
| September 6, 2017 | Yakima | 206 | Suspected Wildfire Exceptional Event |
| September 7, 2017 | Yakima | 197 | Suspected Wildfire Exceptional Event |

Demonstrate Spatial and Temporal Variability of PM₁₀ in the Area

Table 2 from 81 F.R. 68242 (October 3, 2016) asks the states to demonstrate spatial and /or temporal variability of the pollutant of interest in the area.

Nearby PM₁₀ Regulatory Compliance Monitors: Kennewick and Yakima monitors were the affected monitors that both recorded the PM₁₀ exceedances on September 5, 6 and 7, 2017. The Yakima monitor is ~80 miles to the northwest of Kennewick monitor. The wildfire also impacted Spokane-Augusta monitor (53-063-0021) which is ~140 miles to the northeast of Kennewick monitor. The Burbank PM₁₀ monitor had PM₁₀ exceedances caused by the same event, however, it is a temporary Special Purpose Monitor (SPM) and does not have a PM_{2.5} monitor at the same location. Therefore, we selected Spokane as a nearby PM₁₀ regulatory compliance monitor to compare with data recorded by the Kennewick and Yakima monitors.

As shown in Figure 12, Figure 13 and Figure 14, hourly PM₁₀ concentrations at all three monitors exceeded the 150 µg/m³ NAAQS. PM_{2.5} was also significantly elevated on those three to four days during the wildfire event in early September 2017. The PM₁₀ concentrations correlated well with PM_{2.5} at all three monitors.

As discussed in section 0, the nephelometer PM_{2.5} monitor likely underestimated PM_{2.5} concentrations due to the uncertainty of the measurement method at high concentrations. The BAM-1020 monitors at Yakima and Spokane meet a higher standard of accuracy.

Yakima had more smoke impact from the local wildfires, Norse Peak Fire and Eagle Creek Fire. Therefore, PM_{10} and $PM_{2.5}$ concentrations had more spikes on September 5, 6 and 7, 2017.

There were apparent similarities between the data recorded by Kennewick, Yakima and Spokane monitors during the September 2017 wildfire event.

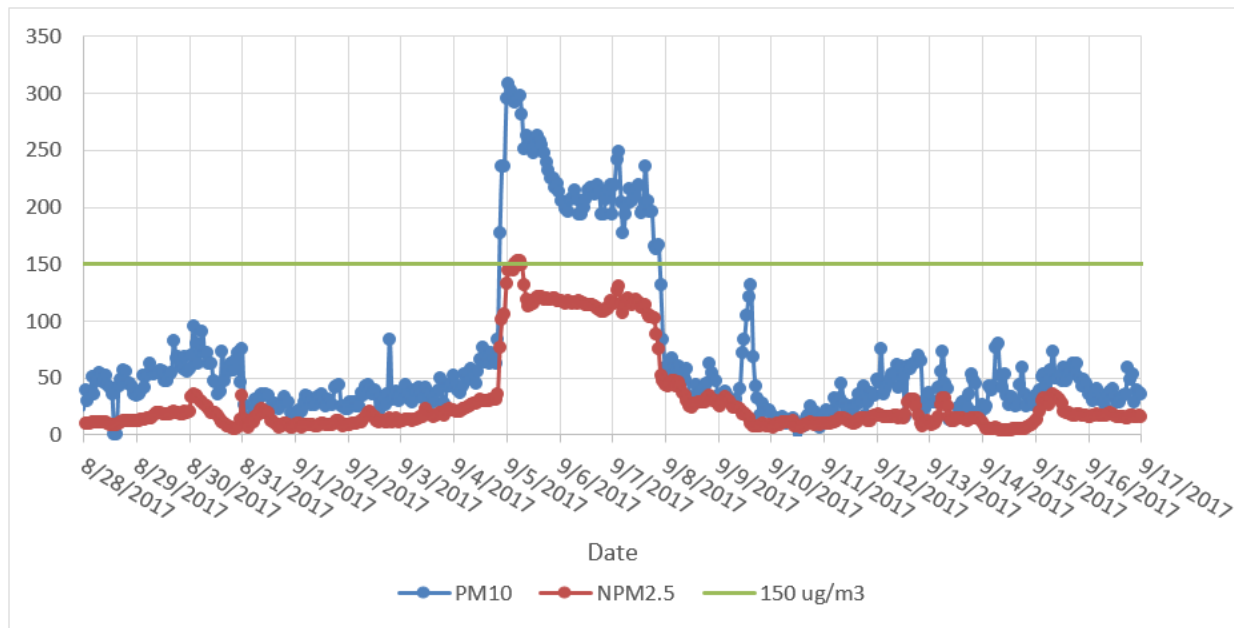


Figure 12. Hourly PM_{10} and $PM_{2.5}$ at KENMETA with the surrounding two weeks of the event days on September 5, 6 and 7, 2017.

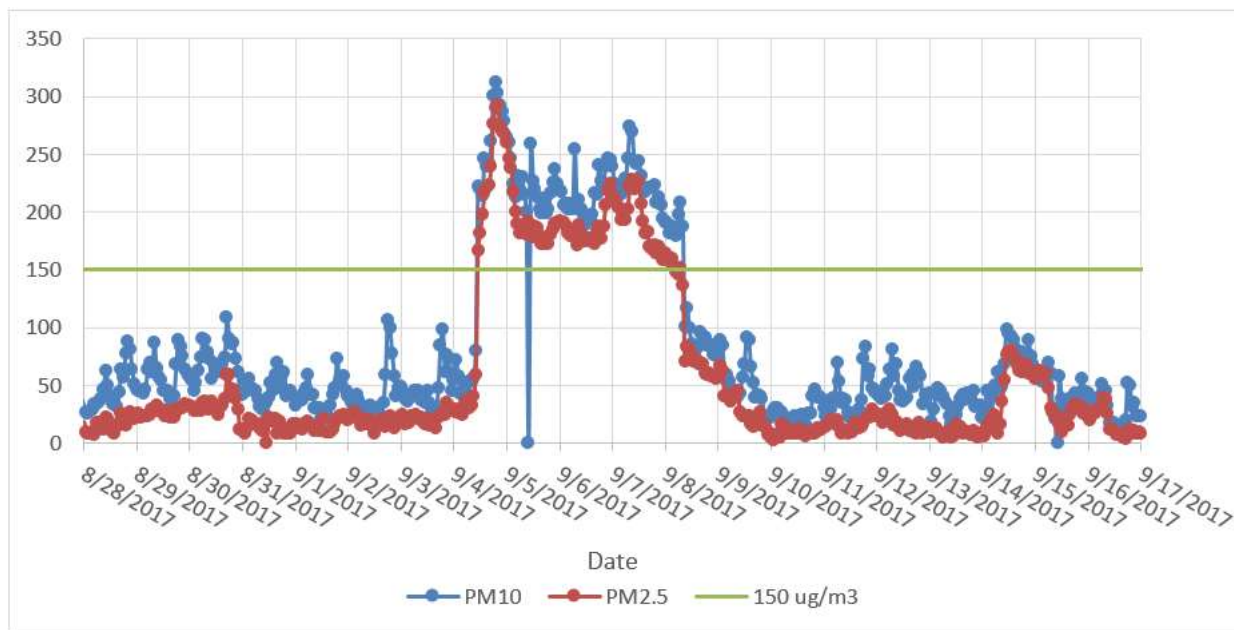


Figure 13. Hourly PM_{10} and $PM_{2.5}$ at Spokane with the surrounding two weeks of the event days on September 5, 6 and 7, 2017.

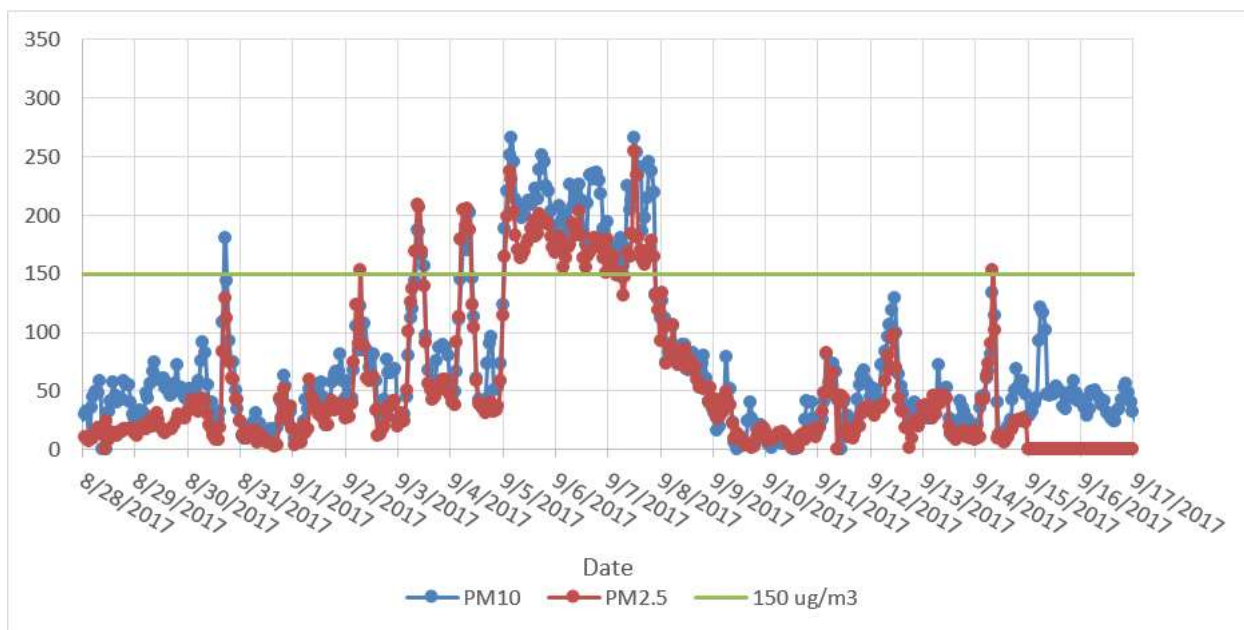


Figure 14. Hourly PM₁₀ and PM_{2.5} at Yakima with the surrounding two weeks of the event days on September 5, 6 and 7, 2017.

Comparison of Concentration on the Event Day with Neighboring Days: Figure 12 and Figure 14 show the hourly average PM₁₀ and PM_{2.5} at Kennewick and Yakima on September 5, 6, and 7, 2017, along with the same data from the surrounding two weeks. The PM₁₀ concentrations at Kennewick and Yakima correlated well with the PM_{2.5}, as shown in the figures. The hourly PM₁₀ at Kennewick monitor only exceeded the 150 $\mu\text{g}/\text{m}^3$ NAAQS when the PM_{2.5} was significantly elevated on those three days during this wildfire event.

Both regional fires and local fires impacted the Yakima monitor. The local fires caused additional spikes of hourly PM₁₀ in the surrounding two weeks. Meanwhile, the hourly PM₁₀ at Yakima monitor only constantly stayed over the 150 $\mu\text{g}/\text{m}^3$ NAAQS on September 5, 6, and 7 during this wildfire event.

No Similarities of This Event with Any Historical Events: This 2017 wildfire event was the first wildfire event that caused PM₁₀ exceedances at Kennewick, Spokane and Yakima PM₁₀ monitors. Since there were no comparable historical events, the requirement to compare concentrations at Kennewick during this event with the same or nearby monitor with similar historical air quality in Table 2 on 81 FR 68242 (October 3, 2016) does not apply to this exceptional event demonstration.

Determine Percentile Ranking

Table 2 from 81 F.R. 68242 (October 3, 2016) suggests determinations of the annual and 5-year percentile ranking of the exceedances.

Figure 15 shows a frequency distribution for the 24-hour PM₁₀ levels for the most recent five years, 2013-2017, at Kennewick (EPA, 2018). This illustrates exceedances of the PM₁₀ standard at this monitor are rare and values are normally well below the standard. The PM₁₀ exceedances

that occurred on September 5, 6, and 7, 2017 ranked within top ten highest in the five most recent years.

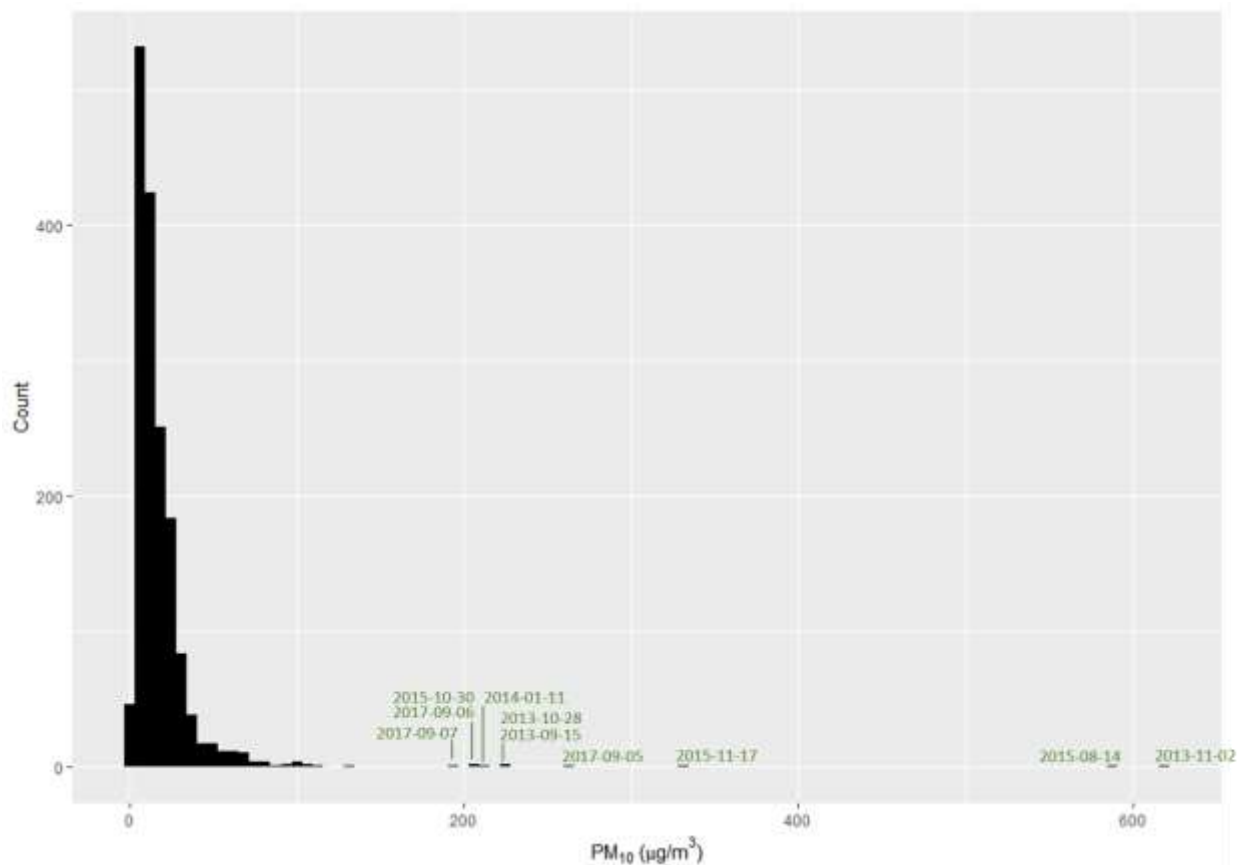


Figure 15. Kennewick frequency distribution of 24-hour PM₁₀ concentrations, 2013-2017.

Figure 16 shows a frequency distribution for the 24-hour PM₁₀ levels for the most recent five years, 2013-2017, at Yakima (EPA, 2018). This illustrates that exceedances of the PM₁₀ standard at this monitor are rare and values are normally well below the standard. The PM₁₀ exceedances that occurred on September 5, 6, and 7, 2017 were the only three exceedances in the most recent five years.

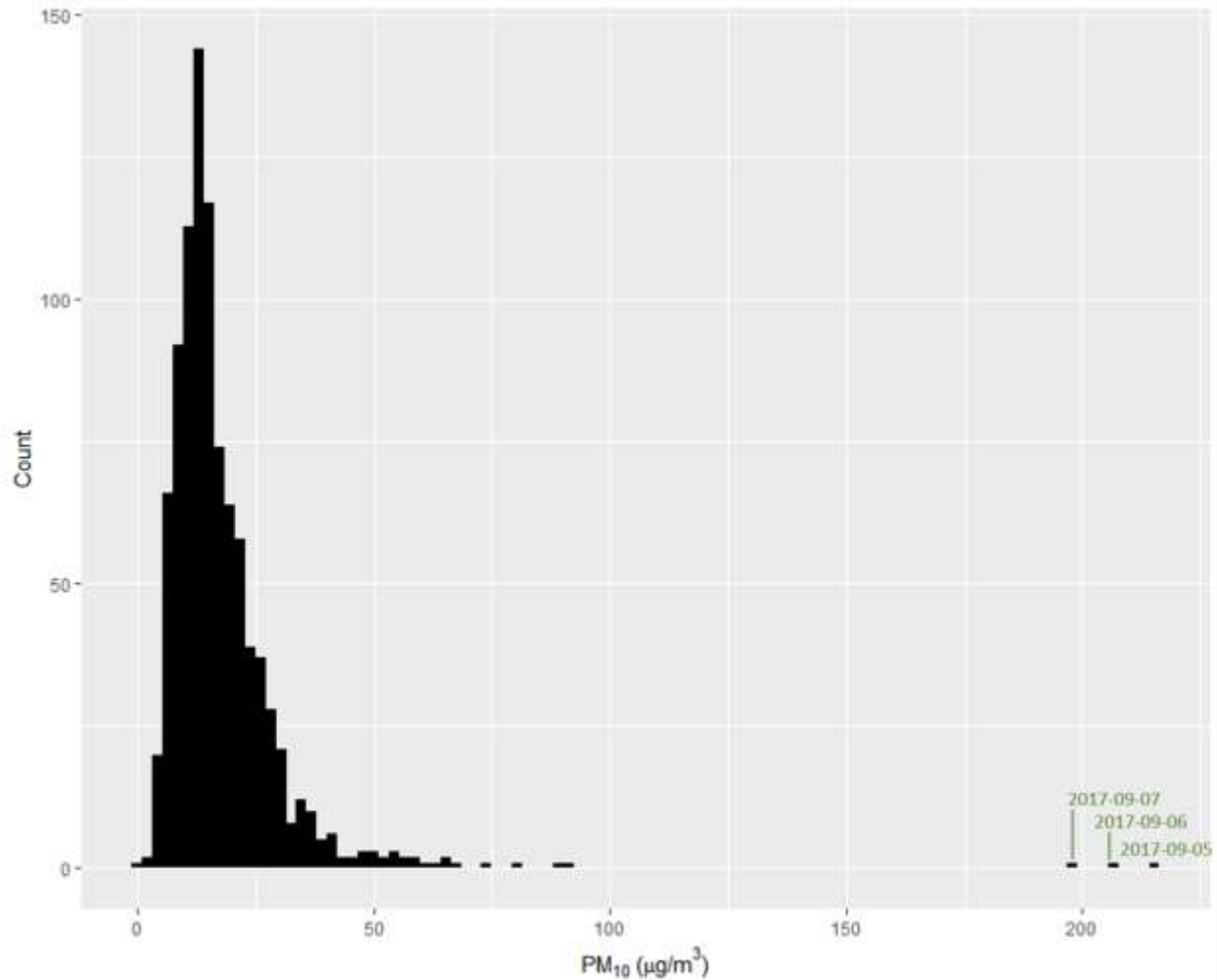


Figure 16. Yakima frequency distribution of 24-hour PM₁₀ concentrations, 2013-2017.

Table 9 below shows PM₁₀ exceedances on September 5, 6, and 7 were higher than 99 percent of values during the most recent five years and the top three in CY2017 at the Kennewick monitor (EPA, 2018).

Table 9. Kennewick 24-hour PM₁₀ value on September 5, 6 and 7 and their percentile ranking.

| Date | 24-hour PM ₁₀ (µg/m ³) | 5-year Percentile Ranking | Annual Percentile Ranking (CY2017) |
|----------|---|---------------------------|------------------------------------|
| 9/5/2017 | 261 | 99.70% | 99.70% |
| 9/6/2017 | 206 | 99.40% | 99.40% |
| 9/7/2017 | 195 | 99.30% | 99.10% |

Table 10 shows PM₁₀ exceedances on September 5, 6, and 7 were higher than 99 percent of values during most recent five years and were the top three in five years and during CY2017 at the Yakima monitor (EPA, 2018).

Table 10. Yakima 24-hour PM₁₀ value on September 5, 6, and 7 and their percentile ranking.

| Date | 24-hour PM ₁₀ (µg/m ³) | 5-year Percentile Ranking | Annual Percentile Ranking (CY2017) |
|----------|---|---------------------------|------------------------------------|
| 9/5/2017 | 215 | 99.80% | 99.60% |
| 9/6/2017 | 206 | 99.70% | 99.30% |
| 9/7/2017 | 197 | 99.60% | 99.00% |

This evidence shows that PM₁₀ exceedances occur infrequently and the exceedances on September 5, 6, and 7, 2017 were outside the range of normal PM₁₀ values at Kennewick and Yakima.

Plot Annual Time Series

Table 2 from 81 F.R. 68242 (October 3, 2016) also suggests an annual time series plot to show the range of “normal” values.

For Kennewick, Figure 17 overlays five years of 24-hour PM₁₀ data and marks data points with EE and suspected EE (EPA, 2018). The wildfire events, which typically happen in the summer, caused three PM₁₀ exceedances in 2017. High wind events caused the rest of the PM₁₀ exceedances shown in the figure below. During non-event days, the PM₁₀ levels were typically well below the NAAQS.

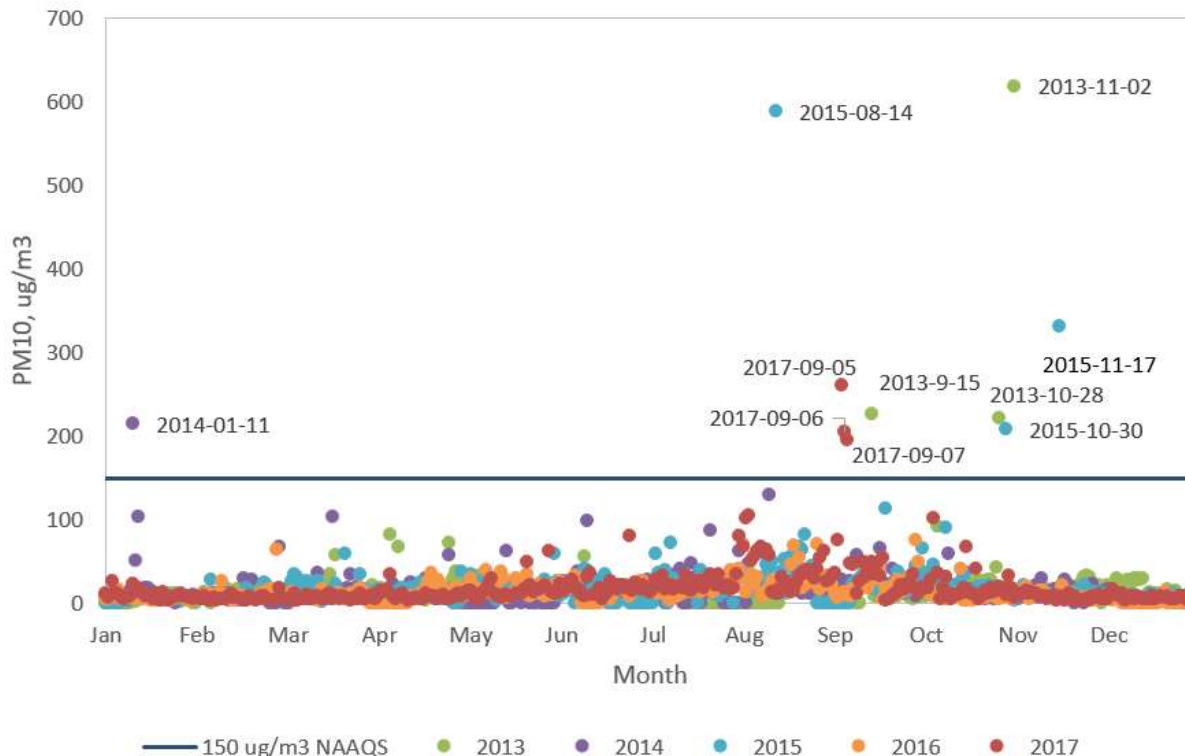


Figure 17. Overlay Five Years of 24-hour PM₁₀ data from Kennewick Monitor.

For Yakima, Figure 18 overlays five years of 24-hour PM₁₀ data and marks data points with EE (EPA, 2018). The wildfire events typically happen in the summer and caused three PM₁₀ exceedances in 2017. During non-event days, the PM₁₀ levels were typically well below the NAAQS.

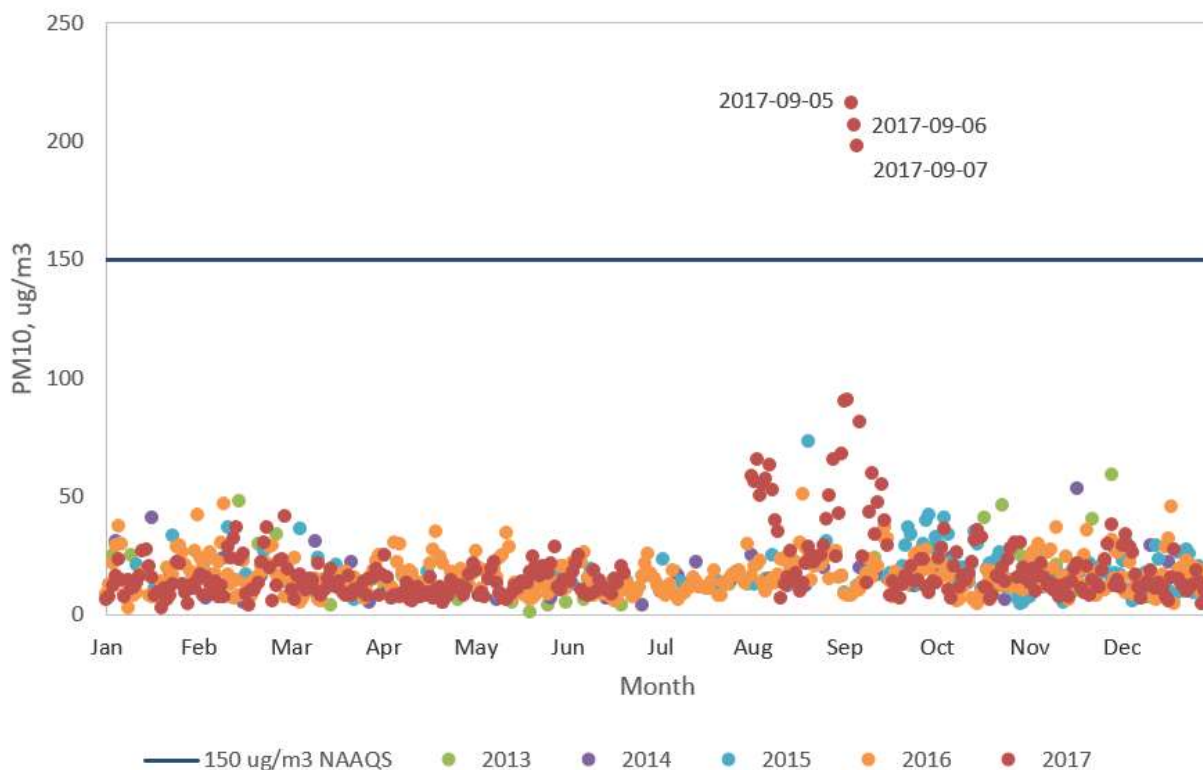


Figure 18. Overlay Five Years of 24-hour PM₁₀ data from Yakima Monitor.

Identify Diurnal or Seasonal Patterns

Table 2 from 81 F.R. 68242 (October 3, 2016) suggests identification of diurnal or seasonal patterns and to show how the diurnal or seasonal patterns differ in relation to the event.

For Kennewick, Figure 19 shows the mean PM₁₀ level (the red line) with the 95% confidence interval (the red band) for July to September from 2013 to 2016 which represents the diurnal pattern during normal conditions. The PM₁₀ levels under normal conditions are relatively flat throughout the day. The blue lines represent the diurnal PM₁₀ patterns from the three event days. The diurnal PM₁₀ pattern during event days mostly depends on meteorological conditions at the time and did not follow the typical diurnal patterns. The one hour PM₁₀ level dropped from around 300 to 220 $\mu\text{g}/\text{m}^3$ on September 5, stayed flat on September 6, and dropped from around 220 to 80 $\mu\text{g}/\text{m}^3$ on September 7, 2017.

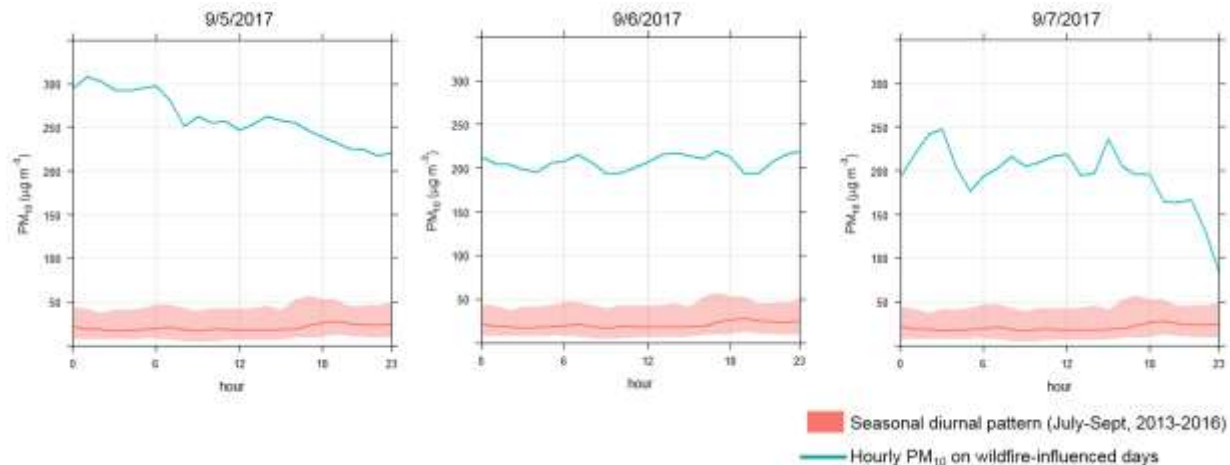


Figure 19 PM₁₀ Diurnal pattern on event days comparing with diurnal patterns on nonevent days during summer months from 2013-2016 at Kennewick.

Yakima started recording hourly PM₁₀ data on September 16, 2015. Therefore, we used data from 2015-2017 excluding the exceedance dates in 2017 to represent the normal diurnal pattern at Yakima. Figure 20 shows the mean PM₁₀ level (the red line) with the 95 percent confidence interval (the red band) for July to September from 2015 to 2017, which represents the diurnal pattern during normal conditions. Under normal conditions PM₁₀ levels are relatively flat throughout the day. The blue lines represent the diurnal PM₁₀ patterns from three event days. The diurnal PM₁₀ pattern during the event days mostly depends on the meteorological conditions at the time and does not follow the typical diurnal patterns. The one hour PM₁₀ level increased from 120 to 250 $\mu\text{g}/\text{m}^3$ on September 5 and stayed relatively flat until it dropped to 130 $\mu\text{g}/\text{m}^3$ late on September 7, 2017.

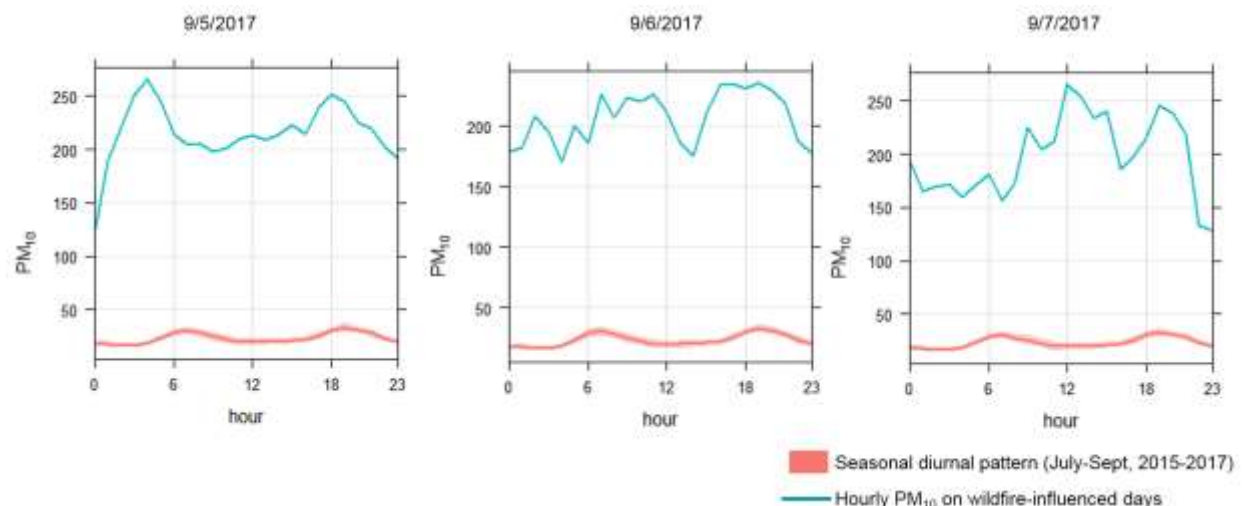


Figure 20 PM₁₀ Diurnal pattern on event days comparing with diurnal patterns on nonevent days during summer months from 2015-2017 at Yakima.

The wildfire season in WA is July through September each year, and Kennewick and Yakima have elevated PM₁₀ levels during these months as shown in

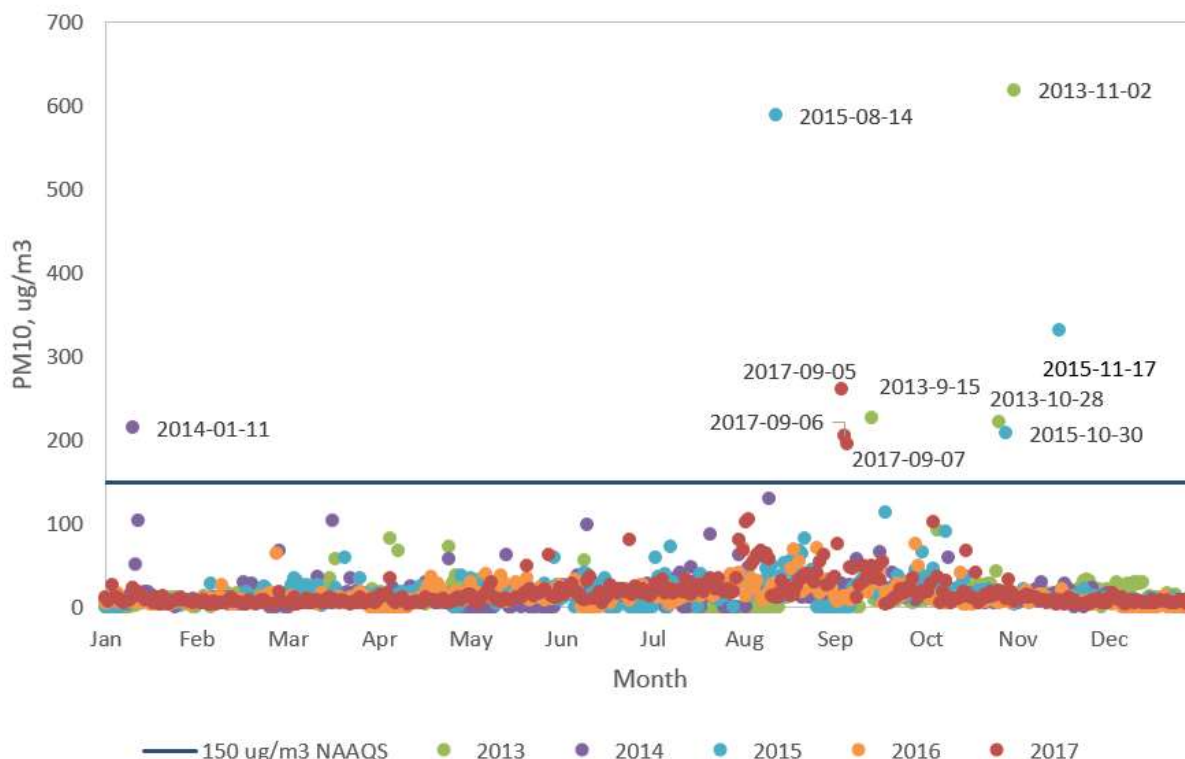


Figure 17 and Figure 18. This event happened in September 2017 and follows the seasonal patterns of wildfire events in both of the areas.

The evidence and analysis provided in this section shows the PM₁₀ exceedances at Kennewick and Yakima monitors were not likely to occur without exceptional events. The wildfire event occurred in early September and impacted a large area. Therefore, the comparison of event-related concentrations to historical concentrations discussed in this section supports the direct causal relationship between wildfire and PM₁₀ exceedances.

Not Reasonably Controllable or Preventable

Per 40 C.F.R. 50.14(c)(3)(iv), the 2016 EER requires states to demonstrate the event was both not reasonably controllable and not reasonably preventable. Per 40 C.F.R. 50.14(b)(4), EPA will determine every wildfire occurring predominantly on wildland to have met the “not reasonably controllable and not reasonably preventable” criterion unless there was compelling evidence to the contrary. The vast majority of wildfires impacting Washington occurred on wildland (See Appendix A).

Ecology also explored alternative emission sources for PM₁₀ during this event, including prescribed fires, agriculture burning, residential wood combustion, open burning, and vehicle emissions. There was a burn ban in effect at the time of this event so there were no prescribed fires, agriculture burning, open burning or residential wood combustion sources allowed. The

magnitude of these PM₁₀ emissions is small compared to wildfire emissions (See Table 4 through Table 6).

Therefore, Ecology determined that this wildfire event met the not reasonably controllable and not reasonably preventable criterion in the EER.

Human Activity Unlikely to Recur or Natural Event

From the 2016 EER, the natural event definition is “An event and its resulting emissions, which may recur at the same location, in which human activity plays little or no direct causal role.”

This wildfire event was not caused by any human activities and met the definition of natural event. Therefore, this wildfire event met this criterion.

Public Notification

The Exceptional Event Rule requires all states to notify the public promptly whenever an event occurs or is reasonably anticipated to occur which may result in the exceedance of an applicable air quality standard. The following subsections discuss the early notification of wildfire in detail.

Ecology Air Quality Notifications

Ecology Air Quality Program developed the following methods to provide notification of these events to the public:

Air Quality Alert Messages: For Kennewick, Ecology issued Air Quality Alert Messages along with health information and the alert was in effect from September 4 to 11, 2017 (See Appendix A for full alerts). National Weather Service Pendleton, OR relayed the messages.

For Yakima, Ecology issued Air Quality Alert Messages along with health information, and the alert was in effect from August 31 to September 13, 2017 (See Appendix A for full alerts). City of Yakima posted all the alerts on their website.

Monitoring Website: The [Washington State monitoring network system webpage](#) (Ecology, 2015) contains current air quality conditions. The public can access this webpage, and it features monitors with near "real -time" air quality data for a number of monitoring sites throughout the state. Each color-coded monitor shows the current local air quality conditions.

EPA's [Air Data website](#) (EPA, 2015) has air quality results for filter-based official data, air quality statistics, and specific monitor information.

Washington Smoke Blog: The Washington Smoke Blog is an effort by county, state, and Federal agencies and Indian Tribes to coordinate and aggregate information for Washington communities affected by smoke from wildland fires. The agencies themselves post the information on this webpage while volunteers built and maintain the page.

Ecology posted public notifications, including smoke forecasts, smoke updates, meteorological conditions, health information, etc. on the [Washington Smoke Blog](#) (See Appendix E for details).

Ecology Twitter and Facebook: Ecology also posted daily on the Agency Twitter and Facebook with smoke updates, forecasts, trends, air quality conditions, etc. during the course of this wildfire event (See Appendix G for more details).

Other Efforts: The Ecology communication team also joined the effort with Washington Department of Health and Department of Natural Resources in sending out social media public notifications. Ecology did five radio interviews, put out two YouTube videos and took numerous phone calls from the public.

Benton Clean Air Agency Notifications

Benton Clean Air Agency (BCAA) sent out a press release on September 5, 2017 with an air quality alert and health messages (See Appendix B for details). They also had several interviews with local TV stations. They put additional information on their agency web page about personal safety and smoke in the air, and referred people to the Smoke Blog for additional information. BCAA answered many phone calls regarding health information, and coordinated information and data interpretation with the Benton-Franklin Health Department and school districts. Between April and October each year, the Fire Marshal for Benton County has jurisdiction over burn bans. At the time of this wildfire event the fire danger was “Very High” which prohibits all burning except recreational and permitted agriculture burning. During those weeks BCAA did not allow any agriculture burning. BCAA asked the public to voluntarily refrain from all recreational (fire pits, barbeques) burning during this time.

Yakima Clean Air Agency Notifications

Yakima Clean Air Agency (YRCAA) did two on-air interviews with their local TV stations. The agency also answered numerous calls from schools and individuals about the wildfire smoke in the area. At the beginning of the 2017 wildfire season, YRCAA updated and revamped their website to include a new [Wildfire Smoke Information](#) page. They also created a ticker tape to announce burn bans and messages that they determined were of the most importance to their community members.

As a result of pollutant levels, the Agency declared a Stage I Burn Ban from August 31, 2017 until approximately September 14, 2017 (See Appendix C).

Flagging and Initial Notification

Flagging: Ecology properly documented the exceedances of the 24-hour PM₁₀ NAAQS at Kennewick and Yakima monitors on September 5, 6, and 7, 2017. Ecology flagged the data with informational flags (i-flag) in EPA’s AQS in February, 2018 to notify EPA that Ecology suspected a wildfire event caused these exceedances.

Regular Communications: Ecology discussed flagging of these PM₁₀ exceedances in AQS during the regular check in between Ecology and EPA Region 10 on December 14, 2017. Since then, Ecology and EPA Region 10 staff engaged in regular communication, determined these exceedances had regulatory significance, and that Ecology should submit this exceptional event demonstration.

Initial Notification: Ecology notified EPA of its intent to submit this demonstration during multiple regular check-in and phone calls since December, 2017 and also at the EPA Region 10

Exceptional Event 6th Annual Meeting on May 31, 2018. Through these actions, Ecology met the initial notification requirement.

Public Involvement and Public Comments

Ecology invited public comment on the proposed “Exceptional Event Demonstration for the August 14, 2015 PM10 Exceedance due to High Winds at Kennewick, WA” from September 25 to October 25, 2017. Ecology received six comments on four different topics including: Opposition to the Exceptional Event Demonstration (Opposes EE), Support for the Demonstration (Supports EE), issues relating to feedlots, public health, Ground Level Ozone, and Ecology’s Jurisdiction.

Public Comments

| Affiliation | Commenter Name | Topics where comments were assigned | Associated Comment numbers |
|----------------------------|-----------------|-------------------------------------|----------------------------|
| Individual | | | |
| | Mellotte, Brad | Opposes EE | I-4-1 |
| | | Public Health | I-4-2 |
| | | Ozone | I-4-3 |
| | | Jurisdiction | I-4-4 |
| | Reimer, Colleen | Opposes EE | I-3-2 |
| | | Public Health | I-3-1 |
| | Saenz, Anna | Opposes EE | I-2-2 |
| | | Public Health | I-2-1 |
| | Souder, Phil | Supports EE | I-1-1 |
| Agency | | | |
| Organization | | | |
| | Whitefoot, jan | Opposes EE | O-1-1 |
| | | Public Health | O-1-2 |
| | | Feedlots | O-1-3 |
| Friends of Toppenish Creek | Mendoza, Jean | Supports EE | O-2-2 |
| | | Feedlots | O-2-1 |
| Tribal Government/Agency | | | |
| Other | | | |

Comments and Responses:

Comments and Responses are grouped together and organized by topic. Under each topic heading you can see all the comments Washington State Department of Ecology

received for that topic followed by Washington State Department of Ecology's single response to all the comments on that topic.

Washington State Department of Ecology used the following topics to group comments together:

- Supports EE
- Opposes EE
- Public Health
- Feedlots
- Ozone
- Jurisdiction

Comments on Supports EE

Summarized Commenters: Phil Souder, Friends of Toppenish Creek,

Commenter: Phil Souder - Comment I-1-1

You gotta be kidding how do you stop a wildfire. This is an occurrence not a constant event. This really shows how stupid our government is as well as the writers of this rule.

Commenter: Jean Mendoza - Comment O-2-2

To be very clear: The wildfire events of September 5, 6 and 7, 2017 led to hazardous air quality for the people of south Yakima County. The agency with a mandate to protect the people could not do very much about the wildfires. However, they had the power to prevent addition of more significant pollution and they failed to do so.

Response to Supports EE

Thank you for your comments. We agree that protecting communities from harmful particulates resulting from human generated smoke and other sources is a core responsibility of Ecology and our partners.

The Exceptional Event designation process allows us to analyze exceedances and determine which are human-caused and preventable, and which are caused by extreme acts of nature and beyond reasonable control methods. This allows us to work with communities to develop effective control strategies.

If you would like to view near-real-time data on criteria air pollutant levels near you, please check out our *Washington's Air Monitoring Network* page <https://fortress.wa.gov/ecy/enviwa/>

1.1.1.1.1.1 Comments on Opposes EE

Summarized Commenters: Anna Saenz, Jan Whitefoot, Colleen Reimer, Brad Mellotte,

Commenter: Brad Mellotte - Comment I-4-1

The attached pdf contains my comments. Thank you. I object to the Request for "Exceedances Due to Wildfires" under the 2016 Exceptional Event Rule (EER). In doing so, I apologize for the disorder of my objection. However potentially causing economic harm to my community as threatened in the Request Report gave me pause, and I am unfortunately making this objection at the 11 hour.

Our clean air agencies have been put in the position of covering US Forest Service (USFS) managed fire smoke particulate air pollution. Instead of the USFS paying to obtain exceedance exemptions for their managed fires (the Norse Peak Fire), our State and local clean air agencies are forced to do so. The USFS is standing by on the sidelines watching, but not paying or taking any responsibility for the pollution exceedances it significantly helped to produce and emit.

IF THERE ARE ANY NEGATIVE ECONOMICAL AFFECTS FROM LOSING NONATTAINMENT STATUS THAT CAN BE QUANTIFIED, OUR STATE AND LOCAL CLEAN AIR AGENCIES SHOULD STAND-UP FOR THE CITIZENS OF WASHINGTON STATE AND DEMAND FULL REIMBURSEMENT FROM THE MOST SIGNIFICANT AIR POLLUTION OFFENDER INVOLVED WITH THIS EXEMPTION REQUESTS.

The EER regulation further states, at page 68216:

"As part of the EPA's mission to protect public health, this action [Regulation] promulgates new requirements for mitigation plans for areas with known, recurring events."

The EPA cannot conduct its mission to protect public health if it allows the requested exceedance exemption. As the fires of this summer of 2018 have again proven to us, the USFS' promise to the public that we should expect more wildfires and smoke in our immediate future is true to its word. With smoke pollution like the Yakima Valley experienced in 2017 and then again in 2018, the **EPA must require that we suspend our offending region's attainment so that the required and appropriate mitigation efforts can begin. It will be only then that a very significant source of our summer wildfire pollution, the USFS in its fire management decisions, is for once held accountable to the public for the public health harm it has been "deciding: to emit."**

THE EXCEEDANCES AT ISSUE CANNOT BE EXCEPTIONAL EVENTS BECAUSE THEY ARE THE RESULT OF A FIRE THAT WAS INTENTIONALLY NOT SUPPRESSED BUT RATHER "MANAGED" FOR FOREST HEALTH AND FUEL REDUCTION PURPOSES. CERTAINLY, UNFORSEEN WILDFIRES THAT START UNEXPECTEDLY IN DANGEROUS ENVIRONMENTAL SITUATIONS AND ARE NOT REASONABLY ABLE TO BE SUPPRESSED WOULD NOT FIT THE DESCRIPTION OF:

"Routine emissions generated by and transported from anthropogenic sources are not exceptional events." Supra at pg. 68246

In footnote 53 of this last provision regarding routing emissions from anthropogenic sources, the footnote reads.

"An example of routine emissions generated by and transported from anthropogenic sources might include emissions of ozone precursors or directly emitted particulate matter (or PM

precursors) from one state or foreign country's power plants transported into another state or the U.S ...

PM particulates can be precursors to ozone, and in that manner PM particulates may be relevant. However, the Request Report does not tie the PM 10 exceedances at issue to any ozone affectation.

The Exceedance Request Report state's that:

"Ecology has discussed with EPA Region 10 during the initial notification process and determined that the PM 10 exceedances listed in Table 1 are regulatory significant and an exceptional event demonstration. 14 Ecology would not have discussed the relevancy of PM 10 particulates with EPA Region 10 if Ecology itself did not question the regulatory significance of PM 10 particulates. The particulates could in fact be relevant, if tied to ozone affectation.

The Final Rule itself, as set forth in 40 CFR Parts 50 and 51, states:

"This final rule contains definitions, procedural requirements, requirements for air agency demonstrations, criteria for the EPA's approval of the exclusion of event influenced air quality data and requirements for air agencies to take a12_12ro12riate and reasonable actions to protect public health from exceedances or violations of the NAAQS." (Emph added)

The requested wildfire air pollution exceedances that are the subject of this Exemption Request have unfortunately become part of our clean air agencies' expected events. These air pollution exceedances are now part of our environment.

However, the NEPA and CAA and their State counterparts were adopted for just such an occasion. When these Acts were born into law, many areas of our Country, including the Yakima Region, were then out of attainment. Nothing has really changed. We are simply out of attainment again. I cannot imagine the NEPA and CAA drafters believing that annual air pollution events would ever be exempted from these laws. These laws were created to protect human health from air pollution levels "exceeding" harmful levels. To allow the Requested Exceedance Exemptions would be throwing away 50 years of air pollution clean-up and mitigation efforts.

The Requested Exemption is clearly against Federal environmental policy and law, as well as against Washington's Smoke Management Act.

Commenter: Colleen Reimer - Comment I-3-2

Health is a major concern to many of the lower Yakima Valley residents and the air quality conditions we live in must be reflected accurately and honestly. Wild fires are a fact of life in the West. Conforming to a fictional federal government report will not change this.

Commenter: Anna Saenz - Comment I-2-2

I believe this should not go unnoticed and that we should take precautions for the fire's that seem to get worst every year.

Commenter: jan Whitefoot - Comment O-1-1

WE believe wildfires desperately need to be included with the total count for exceedances of bad air quality days in the Yakima Valley because we have had wildfires for 3 years and they are no

longer exceptional.

This situation has become a crisis because of Ecology's fear of offending industry. EPA needs to step in and declare Yakima County as a non compliance air shed. The toppenish air monitor's non compliant days also need to be counted towards noncompliance since it is considered in the same airshed and is at a federal level. Yakima regional clean air authority collects a fee from the city of Toppenish, therefore toppenish' non compliance days would tip the scales towards non compliance. The air monitors in toppenish and Sunnyside need to be monitored by trustworthy organizations who would not have non compliant days counted because air monitors were conveniently broken on additional bad air days. These "Broken monitors" days need to be reviewed by an unbiased EPA panel.

We do not trust Ecology's track record of bias towards polluting industries. They have shown they are incapable of and do not care about protecting the health of citizens within the Yakima airshed. please, intervene, EPA.

Ecology Response to Opposes EE

Ecology appreciates the comments regarding the exceptional event demonstration. The Exceptional Event request document asks EPA to exclude wildfire smoke impacts from air monitoring data if they result in violations of the National Ambient Air Quality Standards (NAAQS). This is done to help us distinguish between human-caused sources of smoke and smoke generated from wildfires through acts of nature beyond reasonable control. This is important for us to work with communities to develop appropriate and proportionate pollution control strategies.

The local governments and communities in and around Yakima and Kennewick have worked together to lower PM10 levels through various measures such as woodstove curtailment. If you would like to view near-real-time data on criteria air pollutant levels near you, please check out our *Washington's Air Monitoring Network* page here: <https://fortress.wa.gov/ecy/enviwa/>

Department of Natural Resources (DNR) is the agency responsible for mitigating and curtailing wildfires. As part of that mission, they develop and maintain a Smoke Management Plan to protect local communities. They are currently revising their Smoke Management Plan as a separate rulemaking effort. Your opinion is very important to the development of that plan. Please contact Jonathan Guzzo at DNR at jonathan.guzz@dnr.wa.gov for information on how to participate in their process.

Comments on Public Health

Summarized Commenters: Anna Saenz, Jan Whitefoot, Colleen Reimer, Brad Mellotte,

Commenter: Brad Mellotte - Comment I-4-2

I object on the moral and ethical ground that allowing the Exemption would be trading our regional status of attainment for our public's health, and more specifically the health and life expectancy of our most vulnerable populations: the poor, minority groups with higher incidents of breathing illness, pregnant women, children and a very large portion of the population more sensitive to wildfire smoke due to cardio-pulmonary illnesses, asthma, other breathing diseases, and heart disease.

AN EXCEEDANCE EXEMPTION WILL CAUSE MORE POLLUTED AIR AND HARM HUMAN HEALTH AND LONGEVITY

THIS IS AN INTERESTING FACT AS THE NEPA AND CAA DO NOT ALLOW AGENCIES TO TAKE ACTIONS THAT MAY BE HARMFUL TO THE ENVIRONMENT OR HUMAN HEALTH.

THE USFS WFU POLICY AND PLAN IS NOT BASED UPON ALL AVAILABLE AND BEST SCIENCE AS IT EXCLUDES CONSIDERATION OF PUBLIC HEALTH

THE EXCEEDANCE REQUESTS OVERLOOKS HARMFUL CUMULATIVE AFFECTS OF WILDFIRE SMOKE TO HUMAN HEALTH.

The Request Report does not consider other particulates, including PM 2.5 particulates, caused by the "exceptional events." It does not appear from the Report, or it is not clear, that the combined affects of both PM 10 and PM 2.5 particulates on the stated days have been considered. Both these particulates are mentioned in the Request Report, but the cumulative and combined affect of these 2 different size particulates on human health has not been determined.

The NEPA and CAA were written to protect human health. These laws require that certain air quality standards be met to protect public health. These laws require any air polluter, whether private, state or federal to consider the human health impact of any action. These laws also require air polluters to consider the cumulative affects of intended act upon pollution emitted in the past and that may be planned in the future.

THE EER VIOLATES APA AND NEPA ARE CAA AS IT DOES NOT CONSIDER THE CUMULATIVE IMPACTS OF TIME PRIOR TO 3 YEARS PRIOR TO THE REQUESTED EXCEEDANCE. HUMAN HEALTH PARTICULATE HARM IS CUMULATIVE BEYOND A 3 YEAR LOOKBACK.

Commenter: Colleen Reimer - Comment I-3-1

Surely, you are not serious?! People suffering from lung diseases do not get a reprieve just because the WA. Dept of Ecology wants to ignore the real world and conform to mythical air quality ratings. Not only is this a preposterous idea, it could lead to multiple monitoring exceptions that impact the poor air quality in the lower Yakima Valley. Health is a major concern to many of the lower Yakima Valley residents and the air quality conditions we live in must be reflected accurately and honestly. Wild fires are a fact of life in the West. Conforming to a fictional federal government report will not change this.

Commenter: Anna Saenz - Comment I-2-1

Within those 3 day's of pollution. It can take a toll on the citizens of Yakima and Kennewick health. I believe this should not go unnoticed and that we should take precautions for the fire's that seem to get worst every year.

Commenter: jan Whitefoot - Comment O-1-2

Today our families were prisoners in our homes because the air quality was labeled too hazardous to go outside. My neighbor has asthma so bad she lost her job as a nurse. We have had bad air quality for over 2 solid weeks because of wildfires.

Response to Public Health

Thank you for your comment. At Ecology our mission is to protect, preserve, and enhance Washington's environment for current and future generations. We achieve this mission by providing the infrastructure to monitor human-caused emissions that are present in Washington State. We are providing this exceptional event demonstration to EPA to show how truly different and uncontrollable the air quality conditions were because of the wildfires.

This Exceptional Event demonstration is to show the Environmental Protection Agency (EPA) the conditions that were present in Yakima and Kennewick due to wildfires, specifically during the month of September 2017.

Ecology analyzed emission sources for PM10 during the event in accordance with EPA's Exceptional Event Rule (September 30, 2016). We researched:

- Prescribed fires
- Agriculture burning
- Residential wood combustion
- Open burning
- Vehicle emissions

As there was a burn ban in effect at the time of this event, we had no impact from prescribed fires, agriculture burning, open burning or residential wood combustion.. The magnitude of PM10 emissions from vehicles is small compared to wildfire emissions (See Table 4 through Table 6, on pages 11-13, for more information).

To address your concerns about wildfire smoke, the Department of Natural Resources (DNR) is currently revising their Smoke Management Plan as a separate rulemaking effort. You can contribute to the development of that plan. Please contact Jonathan Guzzo at DNR at jonathan.guzz@dnr.wa.gov for information on how to participate in their process.

For future inquiries about air quality, please visit our air quality-monitoring site at <https://fortress.wa.gov/ecy/enviwa/Default.ltr.aspx> or the smoke blog at <http://wasmoke.blogspot.com>.

Comments on Feedlots

Summarized Commenters: jan Whitefoot, Friends of Toppenish Creek,

Commenter: jan Whitefoot - Comment O-1-3

Yakima valley, over 90 concentrated animal feeding operations pollute all year round. They contribute to the pollution during forest fires also. The CDC/ AStdr is so concerned about Yakima Valley Cafo pollution, they just finished a study monitoring air pollution near factory farm dairies here locally. These results will be out shortly after Labor Day. The Yakima Valley Farmworker Clinic has supported a recent study of monitoring air quality in homes near Cafos in the lowerValley. John Hopkins's Dr. Deanna Williams did an air quality study in homes of the Yakima valley near dairy cafos. Pollution from dairies was found inside these homes. Per Yakima Herald article were Ecology spokeswoman said they wanted to support industry and we had pretty good air quality was criminal on Ecology's part. No where in the article did Ecology admit that Yakima County' s citizen's health should be protected. epa needs to step in and declare Ecology incapable of fairly determining non compliance. When I called Ecology to have them explain the compliance non compliance issue, they couldn't. I was referred to one person after another until they admitted that only 2people in their office in the state of Washington could calculate noncompliance.

Commenter: Jean Mendoza - Comment O-2-1

Friends of Toppenish Creek is dedicated to protecting the rights of rural communities and improving oversight of industrial agriculture. FOTC operates under the simple principle that all people deserve clean air, clean water and protection from abuse that results when profit is favored over people. FOTC works through public education, citizen investigations, research, legislation, special events, and direct action.

We take this opportunity to inform Ecology and the Environmental Protection about serious air quality issues in the Lower Yakima Valley.

In Yakima County the Clean Air Act is enforced by the Yakima Regional Clean Air Agency (YRCAA). South Yakima County is home to 35% of all Washington dairy cows. There are about 100,000 milk cows plus an equal number of support animals in a 273 square mile area. The dairy industry brings to the area significant air pollution in the form of fine particulate matter (PM 2.5) that is formed from ammonium and nitrate emissions, plus dust (PM 10) that is generated by the animals in pens and the turning of manure compost.

We do not believe that Table 5 in Ecology's document Exceptional Event Demonstration for September 2017 PM10 Exceedances Due to Wildfires provides an accurate description of the anthropogenic source emissions for the Lower Yakima Valley. We believe that this table under-reports emissions of reactive nitrogen and dust from dairy operations.

In 2013 and again in 2017 FOTC and others petitioned the YRCAA to ban spraying of manures into the air or broadcast spreading of manures during inversions and burn bans. YRCAA rejected our petition. Consequently dairymen are free to add to the already dangerous levels of particulate matter in the air during adverse air events. The wild fire events that are under discussion here are stark examples of the dangers to human health when airborne particulates reach certain levels.

Response to Feedlots

Thank you for your comments. After reviewing our emissions tables (4 and 5) we saw the need to show data which reflects the exceptional nature of the event. Previously, we used an outside source that did not capture all of the human-based emissions that we monitor.

We used our agency-developed annual 2014 comprehensive emissions inventory to reconstruct the tables to address your concern and show the average combined emissions inventory in the area, which includes PM from feedlots. Comparing the averages in the tables with the concentrations present during this exceptional event shows there was a large, uncontrollable, increase in PM10 pollution due to smoke from wildfires.

Comments on Ozone

Summarized Commenters: Brad Mellotte

Commenter: Brad Mellotte - Comment I-4-3

OUR WASHINGTON STATE AND FEDERAL CLEAN AIR AGENCIES, THOSE AGENCIES THE PUBLIC BELIEVES ARE PROTECTING THEIR HEALTH ARE REQUESTING EXCEEDANCE EXEMPTIONS TO KEEP OUR LOCAL "ATTAINMENT" STATUS, BUT THE PRACTICAL AFFECT IS THAT AN EXEMPTION WILL ONLY PROMOTE USFS FIRE MANAGEMENT "LET IT BURN" WFU POLICY.

Our government Agencies charged with protecting public health are requesting an exceedance exemption of a "widespread regional wildfire event" that "caused the particulate pollution levels to exceed the PM10 National Ambient Air Quality Standard."

A significant portion of subject the air pollution was caused by the Norse Peak Fire near Yakima.

AN EXCEEDANCE EXEMPTION WILL VIOLATE THE NATIONAL ADMINISTRATIVE PROCEDURE ACT (ACA), THE NATIONAL ENVIRONMENTAL PROTECTION ACT 6 (NEPA), THE NATIONAL CLEAN AIR ACT (CAA), AND STATE AND REGIONAL LAW, WILL BE HARMFUL TO PUBLIC HEALTH, AND WILL SERVE ONLY TO CONTINUE TO PROMOTE USFS WILDFIRE WFU POLICIES AND PLANS THAT VIOLATE THE PUBLIC'S RIGHT TO CLEAN AIR.

The Requesting party cites EPA's Exceptional Events Rule which was promulgated in 2007. That may be the official Federal Register title of that regulation. However, the Regulation is more clearly defined in EPA's Guidance on the Pre12aration of Exce12tional Events Demonstrations for Wildfire Events that May Influence Ozone Concentrations, EPA2016

Ozone exceedances were the only pollution source to be regulated in the 2007 regulation. The Exceptional Events Rule is clear in this regard where it the EPA states:

"The data used in the comparison of historical concentrations analysis should focus on concentrations of O3 at the influenced monitor and nearby monitors if appropriate. Evidence of additional impacts on air quality [carbon monoxide (CO), particulate matter (PM), nitrogen oxides (NOx), etc.] can also be provided if they provide additional insight." (Emph added)

"The EPA would not consider the physical event (e.g., a high wind or the wildfire) to be an exceptional event unless the resulting event-generated pollution (e.g., particulate matter (PM) or ozone) reached and caused an exceedance or violation at a monitoring location or locations."

The new revised regulation is titled the "2016 Treatment of Data Influenced by, Exceptional Events."

The 2016 rule also states within its summary:

"In addition to finalizing revisions to the Exceptional Events Rule, the EPA is also announcing the availability of the final version of the non-binding guidance document titled Guidance on the Preparation of Exceptional Events Demonstrations for Wildfire Events that May Influence Ozone Concentrations, which applies the rule revisions to wildfire events that could influence monitored ozone concentrations." Supra at page 68216

BECAUSE THE EXCEPTIONAL EVENT RULE DOES NOT CLEARLY MAKE AN EXCEPTION FOR PM 10 PARTICULATES ALONE, EXCEPT AS THEY MAY BE RELEVANT TO OZONE LEVELS, THE EXCEPTIONAL EVENT RULE DOES NOT APPLY. The Request Report does not tie the PM 10 exceedances at issue to any ozone affectation. This language not only supports the 03 requirement and purpose of the regulation, but also the requirement that said emissions must be transported from one jurisdiction into another.

PM particulates can be precursors to ozone, and in that manner PM particulates may be relevant. However, the Request Report does not tie the PM 10 exceedances at issue to any ozone affectation.

The Requester's Exceedance Request Report state's that:

"Ecology has discussed with EPA Region 10 during the initial notification process and determined that the PM 10 exceedances listed in Table 1 are regulatory significant and an exceptional event demonstration."

ECOLOGY WOULD NOT HAVE DISCUSSED THE RELEVANCY OF PM 10 PARTICULATES WITH EPA REGION 10 IF ECOLOGY ITSELF DID NOT QUESTION THE REGULATORY SIGNIFICANCE OF PM 10 PARTICULATES. THE PARTICULATES COULD IN FACT BE RELEVANT, ONLY IF TIED TO OZONE AFFECTATION

Response to Ozone

Thank you for your comment regarding Ozone and the promulgation of the Exceptional Event Rule (EER). Although EPA has released some [guidance](#) regarding ground level ozone (O₃) related to wildfires, we are not referencing that for this demonstration.

This demonstration is strictly looking at PM₁₀ exceedances at Yakima and Kennewick during September 5, 6, and 7, 2017. The EER allows exclusion of qualifying NAAQS exceedances from regulatory decisions, upon EPA approval. Without exclusion of these exceedances, Kennewick and Yakima would violate the PM₁₀ NAAQS.

At Ecology we use the EER and the Clean Air Act (CAA) as guidance when we demonstrate exceptional events that are neither human generated sources, nor controllable.

EPA also provides additional information about wildfire and associated smoke events in this document: https://www.epa.gov/sites/production/files/2016-04/documents/2016_04_04_joint_wildland_fire_air_quality_messages.epa_usda_doi.final_.pdf

Comments on Jurisdiction

Summarized Commenters: Brad Mellotte

Commenter: Brad Mellotte - Comment I-4-4

The cause of the exceedances of air pollution for which this exemption is sought is in the direct control of the United States Forest Service (USFS). The USFS does not consider public health when making "Go" decisions to manage a wildfire instead of taking steps to suppress it. If this exceedance exception is granted, the USFS will have no political pressure or incentive to ever consider public health when making wildfire management decisions, and we will continue to harm public health, including our most vulnerable populations, who will be disproportionately harmed. These smoke sensitive populations will pay with their health and life expectancy so that the few can make accumulate more wealth. Trickle down theory may suggest a loss of income may flow downstream to the entire community. However, a loss on income is not a moral or ethical trade for public health; this is the very reason we as a nation created our environmental laws.

The USFS is what is threatening our Region's non-attainment status as a direct result of USFS Wildfire Use (WFU) policies and plans.

The USFS does not consider human health when making fire management decisions. The USFS' "let it burn" policies and plans are creating the dangerous air pollution we suffer every summer fire season now. And they only intend to increase WFU which will cause more smoke and dangerous air pollution next summer and into our immediate future-unless they are stopped.

When congress created the Flame Act , Congress also required oversight of the USFS by the GAO.

THE GAO HAS SPECIFICALLY FOUND IN ITS LATEST 2017 AUDIT THAT THE USFS HAS "DIVERTED FROM ITS CURRENT MISSION" NEGLECTING NON-FIRE (WFU) PROGRAMS.

The 2017 GAO Report states:

"Congress charged USFS with the considerable responsibility of managing 193 million acres of land, maintaining our national forests for "outdoor recreation, range, timber, watershed, and wildlife and fish purposes," and "developing[ing] and administering[ing] the renewable surface resources of the national forests for multiple use and sustained yield ... "

And that:

Non-fire programs and projects-as well as the communities that depend on them-have suffered as a result.

The GAO specifically found the USFS has failed to use fuel reduction alternatives as it promised, despite USFS Chief Thomas Tidwell's included 2015 statement that "the cost of fire suppression" had a "debilitating" impact on the agency's other activities and forced it to shift its staff in addition to its resources."

The GAO knows Chief Tidwell's comment is not entirely truthful, and reported accordingly in its 2017 Audit. The GAO knows that the USFS is reimbursed by the US Congress for these fires that "had a debilitating impact of the agency's other activities."

But this is not all the GAO found in its 2017 Report. The GAO further found:

" ... problems with the USFS hazardous fuels reduction activities have persisted. In 2016, the United States Department of Agriculture's Office of the Inspector General issued a report determining that [the] USFS lacks a cross agency method for prioritizing hazardous fuels treatment projects, overstated the number of acres treated by hazardous fuels projects, and potentially charged activities to the wrong budget line item."

This last statement supports the logical conclusion that is much less expensive for the USFS to allow natural fires to burn to promote their forest health and forest fuel reduction policies and plans. When the USFS allows wildfires to burn into large sizes then claimed as disasters by FEMA or our State Governor, the then Flame Act, or our current Federal Budget this year, reimbursed the USFS for its fire fighting costs. If the USFS allows smaller fires to burn into catastrophic emergencies they will be reimbursed outside and above their annual budget by these special allocations. In this way the USFS actually increases its budget by allowing wildfires to burn into national disasters it receives additional funds for fighting large fires that in turn increase forest health and forest fuel reduction costs.

USFS FIRE MANAGEMENT DECISIONS ARE MADE BY THE THE THE USFS' WHEN IT DRAWS ITS "POLYGON" OF ITHE INTIAL FIRE DECISION PLANNING AREA, WHICH IS NOT DETERMINED UNTIL A NATURALLY IGNITED FIRE STARTS.

In the case of the Norse Peak Fire, the Initial Decision to suppress or manage the fire **set the planning area as 102,000 potentially treatable acres**. Although only approximately 52,000 acres burned according to USFS post fire reports.

The conclusion here is that the USFS intended for the Norse Peak Fire to burn UP., to 102,000 acres in furtherance of its forest health treatment and fuel reduction p.£2,g!3!!!!. Because "where there is a forest fire there is also smoke," the USFS intended the pollution exceedances to occur. The Norse Peak Fire and air pollution it helped significantly to create cannot therefore be said to have been reasonably uncontrollable or preventable as required by the EER.

THE CURRENT "LET IT BURN" POLICIES AND PLANS ARE NOT BASED UPON ALL SCIENCE AS THE USFS CLAIMS.

The USFS directed the 40 scientists composing its often quoted science forum that did not consider the human health issues or impacts of wildfire. The USFS states that its current policy is based upon a sound 2010 science summit, where it hired 40 scientist from different scientific disciplines to study wildfire use as a forest health and catastrophic fire prevention tool using 'the best available science.' What the USFS does not tell the public or Congress however, its that **the USFS directed the scientists participating in the forum to limit their scientific research and**

analysis to consider 4 areas of environmental affects, and to specifically exclude consideration of public health in its recommendation as public health was provided for in other laws and regulated by other agencies.

THIS IS AN INTERESTING FACT AS THE NEPA AND CAA DO NOT ALLOW AGENCIES TO TAKE ACTIONS THAT MAY BE HARMFUL TO THE ENVIREONMENT OR HUMAN HEALTH.

THE USFS WFU POLICY AND PLAN IS NOT BASED UPON ALL AVAILABLE AND BEST SCIENCE AS IT EXCLUDES CONSIDERATION OF PUBLIC HEALTH.

AN EXCLUSION OF THE NATURAL RESULT OF AN INTENTIONAL FIRE MANAGEMENT ACT IS NOT - NOT REASONABLY CONROLLABLE OR PREVENTABLE.

THE USFS SHOULD PROVE ITS CASE IN THIS EXEMPTION PROCEEDING: NOT CITIZENS WANTING TO BREATHE CLEAN & NON-POLLUTED AIR.

It should not be up to laypersons like me with no real prior environmental law, science experience and special knowledge to prove that the USFS' WFU plans and policies are not harming the environment and human health. NEPA puts this burden clearly in the the court of the polluting / requesting party. I do not have the knowledge and expertise, or resources to compete with the scientific technical models offered in this Request. I can only cite legal and logical arguments that are found within in the digital public record that may not be directly responsive to this Request, but are directly applicable and relevant to the issues presented.

Protection from emitters of air pollution that harm human health is the job of the EPA, and our State and local Clean Air Agencies.

In this case, it appears that the Washington State Department of Natural Resources is charged by our state legislature with regulatory control over USFS emissions, and if DNR does not do their job the EPA is required to do so.

MOU's & STATE PARTICIPATION IN AIR POLLUTION EXCEEDANCES

I have requested from the Yakima Clean Air Agency but not yet received a copy of the Memorandum of Understanding (MOU) entered into, upon my information and belief, in 2009 between the United States Forest Service (USFS) and Washington State clean air regulatory agencies. I could not find this MOU published online. This MOU, upon my information and belief, was the result of the Yakima Clean Air Agency attempting to enforce clean air laws against the USFS for starting a prescribed burn that polluted the air the Yakima Valley in 2009. The USFS legally challenged YCAA authority and jurisdiction, which YCAA was upon my information and belief, forced to settle in the face of overwhelming litigation costs.

An Oregon MOU the USFS has entered into with a complaining state and local government in the recent past which is published on the internet, granted the agreeing town, county and state agencies the stated unenforceable benefit of receiving less smoke from USFS fire activities; an illusory legal right to which the town, county and state were already entitled under federal environmental law. (but apparently.. unenforceable against the USFSL 5

WHAT IS INTERESTING ABOUT THE OREGON MOU THAT MAY BE RELEVANT TO THAT OF WASHINGTON, IS THAT THE MOU REQUIRES STATE AND LOCAL CLEAN AIR AGENCIES TO:

" ... SUPPORT A RENEWED PUBLIC PERCEPTION THAT THE U.S. FOREST SERVICE AND BLM ARE RESPONDING TO THE NEED OF CLEAN AIR IN THE PRINEVILLE UGB AREA" (Emph.Added).

This goal is consistent with official USFS research, such as the 2012 *Research Perspectives on the Public and Fire Management: A Synthesis of Current Social Science on Eight Essential Questions*

The USFS is attempting to create or promote a "public perception" that they are responding to public concern about the need for clean air instead of spending their money on research regarding actual smoke reduction or mitigation. The USFS has been and continues researching how to sell the smoke of its WFU program to the American Public regardless of public or state or local government opinion. If the USFS was truly concerned about its reputation it only need act according to the public's need for clean air-it would not need to hire social scientists to advise them on how to create a "perception."

This is relevant to the Exceedance Request because it is partial proof that the USFS can do much more than it is to mitigate wildfire smoke emissions-that much of USFS fire management, including the Norse Peak Fire was deliberate and intentional.

"FOREST FIRES ALLOWED TO BURN AS MANAGED FIRES BY USFS WFU DECISION ARE NOT:

"NOT REASONABLY CONTROLLABLE OR PREVENTABLE,"

The regulation is stated in a "negative proof" sense, because it is the Requesting Agency's burden of proof to show that a managed fire allowed to burn was NOT reasonably controllable or preventable.

WHEN THE USFS IS NOT REQUIRED TO TAKE PUBLIC HEALTH INTO CONSIDERATION BEFORE MAKING A "GO" DECISION TO MANAGE A NATURALLY IGNITED WILDFIRE AS PART OF THEIR FOREST FUEL TREATMENT PROGRAM, WE CANNOT HONESTLY STATE THAT THE FIRE WAS TRULY "NOT REASONABLY CONTROLLABLE OR PREVENTABLE.

A wildfire can only be truly "not reasonably controllable or preventable" if the decision to manage it is placed within the primary and most important context of protecting human health.

My logic does not mean that the USFS must put firefighter health or safety in danger. My logic means that the USFS must consider public health as the number one consideration of all intentional actions to manage or suppress a wildfire. If the USFS does not, they have not properly considered the degree of need based upon the most critical value in the decision process to suppress a fire instead of managing it – public health. And we cannot honestly state that a fire is "not reasonably controllable or preventable."

The USFS had no problem placing elite smoke jumpers on the American Ridge fire that was combined in name with the Norse Peak Fire in very arguable similar conditions. I will admit this argument takes us into the area of discretion, however **discretion can only be exercised if the**

most single important value in American Environmental Law, human health, is considered.

PUBLIC NOTIFICATION REQUIREMENTS

The public had and has no input to fires the USFS decides to manage.

The Exceptional Event Rule requires all States to notify the public promptly whenever an event occurs or is reasonably anticipated to occur which may result in the 9 exceedance of an applicable air quality standard. Perhaps that occurred in this case. The dangerous air pollution produced by the managed fire at issue that harmed communities within its airshed, whether local or stratospheric, was not the product of public involvement that the USFS claims to practice or that the NEPA and CAA require.

The "event" actually occurred several months before the Norse Peak Fire started, when the USFS was required to make a pre-season plan for public notification purposes but did not. The public was not therefor allowed to comment on the ongoing state of dangerous air created by managed fires, except to complain to the USFS that is intent on continuing its expansion of WFU.

The public was denied its absolute statutory and regulatory right of an advance 30 day public comment period as required by environmental law at the time the USFS is required to publish its preseason fire management area description and intentions.

In this analysis, it should be noted that recent studies show that much if the science the USFS relies upon in making its fire management/smoke decisions (that it does not consider) is very uncertain. The only certainty the USFS will admit regarding smoke science is that the science is evolving, still uncertain, and in need of continuing research. See the *Joint Fire Science Program Smoke Science Plan Conclusion: Smoke Science Accomplishments Under the Plan, Final Report*, 21 April 2017

Given this fact, one might question that if the smoke impacts of a wildfire are uncertain, that the fire is not reasonably controllable or preventable. **However, all the Joint Fire Science Report tells us is that the USFS is uncertain about its ability to predict smoke pollution from any given fire. In this respect, the USFS is playing a game of risk with the public's health; the USFS is intentionally managing fire activities, the resulting smoke pollution of which it cannot with any certainty predict or forecast. This directly violates the NEPA and CAA, as the USFS knows there is risk of environmental or public harm being imposed upon the American public, and yet it does not attempt to comply with federal and state clean air laws by publishing its intentions and public notice as normally required.**

AS A MATTER OF EQUITY, IF A POLLUTER IS VIOLATING FEDERAL AND STATE ENVIRONMENTAL LAWS WHILE PRODUCING A POLLUTION EXCEEDANCE, IT SHOULD NOT BE ALLOWED THE BENEFIT OF THAT SAME LAW'S EXCEEDANCE EXEMPTION. IF AN AGENCY INTENTIONALLY VIOLATES THE LAW, IT SHOULD NOT RECEIVE A COROLLARY BENEFIT OF THAT LAW IN FURTHERANCE OF ITS VIOLATION. ALLOWING THE EXCEEDANCE EXEMPTION IN THE CASE AT ISSUE WILL NOT BE ANY STEP IN THE RIGHT DIRECTION OF REGULATING

DANGEROUS AIR POLLUTION EXCEEDING FEDERAL OR STATE STANDARDS.

THE EER IS WRITTEN BACKWARDS AND IS CONTARY TO OUR ENVIRONMENTAL LAWS. IF A CONSTANT AND CONTINUING POLLUTER LIKE THE USFS CAN CONTINUE TO POLLUTE WITH IMPUNITY, AND WITHOUT ANY MITIGATION EFFORT AFTER DANGEROUS EMISSIONS THAT THEY ALONE DECIDED SHOULD BE PUMPED INTO OUR CLEAN AIR, THE USFS SHOULD BE THE PARTY MAKING A REQUEST FOR A SPECIAL EXCEEDANCE ALLOWANCE, INSTEAD OF SCHEDULING MORE SMOKE AND PRESCRIBED BURNS THIS VERY MONTH.

NON-CONSDERATION OF HUMAN HEALTH

UNFORTUNATELY, THE USFS DOES NOT REQUIRE ITS FIRE MANAGERS TO CONSIDER HUMAN HEALTH IN MAKING A "GO" DECISION TO MANAGE INSTEAD OF SUPPRESS A FIRE. THE USFS' FIRST AND TOP PRIORITY WITH REGARD TO FIRE DECISIONS, AS INSTRUCTED BY USDA SECRETARY SONNY PERDUE IN THE 2017 DIRECTION TO WILDFIRE LEADERSHIP IS:

"We expect agency administrators and fire managers in all of your agencies to adhere to the following guidance:

"Firefighter and public safety is a core value that governs every decision and activity,

Understand and embrace the guiding principles set forth in the Federal Wildland Fire Management Policy and National Cohesive Wildland Fire Management Strategy, ... "
(Emph added).

UNFORTUNATELY, FIREFIGHTER AND PUBLIC SAFETY DOES NOT INCLUDE PUBLIC HEALTH. Although rules of the past may have paid lip service to human health, **the last 22 years have seen promulgation of "planning rules" that allow the USFS to disregard human health when making fire management decisions.**

To completely understand how this happened, one needs to read all USFS regulation history from prior to its proposed 1995 Fire Management Plan where it explicitly stated:

"effectively incorporate current fire-related information, including scientific knowledge, risk assessment, social and economic concerns, and **public health considerations**, supra at page 11.

wildland fire management agencies must, early in the process, **involve public health and environmental regulators** in developing the most workable application of policies and regulations." Supra, page 10.

describe early and explain issues such as ecosystem condition, risks, consequences (**including public health impacts**), and costs in open dialogue with internal and external constituents, supra at page 12

conduct all prescribed fire projects consistent with land and resource management plans, **public health considerations**, and approved prescribed bum plans, supra at page 15.

Fire program activities and the increasing interconnection between fire activities and existing environmental, **public health** .. and tort laws require inter-Departmental legal and policy analysis to ensure coordination and compliance, supra at page 30.

Fire weather support is critical to firefighter and public safety and **protection of public health**..”

h .. " The use of fire to sustain ecosystem health is based on sound scientific principles and information and is balanced with other societal goals . **including public health** and safety, air quality, and other specific environmental concerns, supra at page 31.

"The philosophy, as well as the specific policies and recommendations, of the Report continues to move our approach to wildland fire management beyond the traditional realms of fire suppression by further integrating fire into the management of our lands and resources in an ongoing and systematic manner, consistent with public health and environmental quality consideration . We strongly support the integration of wild land fire into our land management planning and implementation activities. Managers must learn to use fire as one of the basic tools for accomplishing their resource management objectives,..." supra

The Memorandum introducing the 1995 Federal Wildfire Policy contains no less than 18 signatures of representatives of the USFS, BLM, National Biological Field Station, Department of the interior, BIA, USFW, US Fire Administration, Department of Commerce/National Weather Service, FEMA, and the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

HERE FOR THE FIRST TIME IN 1995, THE USFS DISTINGUISHES FIREFIGHTER AND PUBLIC SAFETY FROM THE PROTECTION OF PUBLIC HEALTH. THE MEANING OF FIREFIGHTER SAFETY UNDER CURRENT REGULATIONS IS OBVIOUS. HOWEVER, WITHOUT A CLOSE READING OF CURRENT AND HISTORICAL REGULATIONS THE MEANING OF "PUBLIC SAFETY" CLEARLY DOES NOT MEAN GENERAL PUBLIC HEALTH. THE TERM PUBLIC SAFETY IN USFS REGULATIONS MEANS THE SAFETY ONLY OF THAT PART OF THE PUBLIC WHO RESIDE IN THE WILDFIRE URBAN INTERFACE, OR WFU IN USFS LANGUAGE.

Public health was very important in fire management in 1995. The USFS then began its obviously planned campaign to slowly remove public health from its updated regulations and fire plans in 2001, 2005, 2008, 2009, 2012 (the Planning Rule for Fire Management Plans), and the 2014 Fire Management Plan. The removal of public health from USFS fire management decision making policy was systematically, gradually and intentionally removed so that the USFS could further its WFU policies and plans without the restrictions of environmental laws. In the 2012 Planning Rule, the USFS states that

Specific requirements that were brought up by respondents, such as consultation or coordination with the U.S. Fish and Wildlife Service for species listed under the Endangered Species Act of 1973 or with State Air Quality, Boards for air quality management under the Air Quality Act, are addressed elsewhere in Agency regulation and policy. The final rule does not include or reiterate existing direction provided elsewhere."

THE USFS HAS NOW WRITTEN PUBLIC HEALTH CONSIDERATIONS COMPLETELY OUT OF THEIR FOREST HEALTH AND FUEL REDUCTION PLANS.

This provision brings up the WUI, which is defined in Forest Service regulations as an area within several miles of a wildfire. This is the only area where "public safety" is considered. However with even USFS science telling us that wildfires from hundreds of miles away can cause harm to human health, the WUI as described as that area within several miles of a fire is nothing but arbitrary and capricious.

The WFU WUI is defined in other USFS official documents as that area being within several miles of the actual wildfire.

THE 102,000 FIRE MANAGEMENT AREA DESIGNED DURING THE INITIAL DECISION OF THE NORSE PEAK FIRE IMPARTS INTENT TO MANAGE A VERY LARGE FIRE; A FIRE THAT GREW INTO A NATIONAL DISASTER QUALIFYING FOR BUDGETARY FIRE SUPPRESSION FINANCIAL REIMBURSEMENT. Source: WFDSS NORSE PEAK INITIAL DECISION PUBLISHED AUGUST 13, 2017.

However, when the USFS is not required to take public health into consideration before making a "Go" decision on a naturally ignited wildfire to manage it as part of their fuel treatment program, we cannot state that the fire was truly

"not reasonably controllable or preventable."

As required by the black letter regulation. If no agency attempts or tries to suppress a fire, how can we know if it was not controllable or preventable. My logic does not mean that we must put firefighter health in danger, my logic means that we must consider public health, as human health is the number one consideration of all intentional actions with the risk of causing environmental and human health harm. The USFS had no problem placing elite smoke jumpers on the American Ridge fire that was combined in name with the Norse Peak Fire.

The "new" USFS fire management policies and plans did not begin as a catastrophic fire prevention tool. It began as a Forest Health tool. Catastrophic Fire reduction purposes were only added later to better sell the USFS' Forest Health by fire policy.

The USFS began adding catastrophic fire prevention as a more prevalent reason to support WFU to gain additional public support in its "public education" ground battle designed by USFS Social Scientists.

The public will not tolerate putting forest health above public health. But by sleight of hand the public may be confused just enough to remain mute by the argument/sales pitch that managed fires prevent larger and more catastrophic future fires. USFS current science research does not support this proposition.

AN EXCEEDANCE EXEMPTION VIOLATES OUR STATE'S SMOKE MANAGEMENT PLAN.

As our Smoke Management Plan states:

"In 1995, the Legislature amended the Clean Air Act to exempt "emissions from silvicultural burning in eastern Washington that is conducted for the purpose of restoring forest health or preventing the additional deterioration of forest health" from the reduction targets of the Clean Air Act. The Legislature clearly does not want the emissions ceiling of the Clean Air Act to be an obstacle to restoring forest health."

OUR STATE SMOKE MANAGEMENT PLAN FURTHER SPECIFIES WHEN AN EXCEEDANCE EXEMPTION MAY BE ALLOWED:

I. FOREST HEALTH CONDITIONS WHICH MAY QUALIFY FOR EXEMPTION

A. Species Composition - Control species composition to favor the creation and maintenance of stands of fire-resistant seral tree species over climax species.

B. Stand Density - Control of stand density to favor more open fire-resistant and healthy stands over dense, overstocked stands subject to drought stress, insect and disease infestation and high intensity fire.

C. Natural Fuels Build-UP. - Control of fuels build-UP. due to natural Processes and not a direct result of management activities.,

D. Insect and Disease - Control or prevention of insect or disease outbreaks.

E. Restore Natural Processes - Correct the interruption of natural ecological process caused by the exclusion of fire in fire-dependent ecosystems. (Emph added)

II. TYPES OF BURNING QUALIFYING FOR EXEMPTION

A Underburning.

B. Prescribed stand replacement fire not directly associated with a timber harvest.

C. Burning conducted as part of a project designed for forest health and not primarily as a commercial activity.

D. Burning of piled ponderosa pine slash created between January and June to prevent bark beetle outbreaks when no alternatives are available.

III. ALTERNATIVES TO FOREST HEALTH BURNING

Fire is not the only appropriate method of restoring forest health in every situation. Often, stands are so dense and fuel loads are so high that fire is not an option.

Biomass removal instead of, or in combination with burning are effective in decreasing smoke emissions by reducing fuel loading and decreasing the need for burning.

Mechanical treatments such as thinning reduce the need for burning and allow for better control of emissions when burning is used.

Timing of harvest to avoid creating concentrations of ponderosa pine slash during January through June is effective in preventing bark beetle outbreaks.

Alternatives to burning provide opportunities for improving forest health by reducing fuel loading and creating opportunities to reintroduce fire into the ecosystem.

Although our State Smoke Management Plan may provide for "Burning conducted as part of a project designed for forest health," which could arguably be included in USFS fuel reduction policies and plans, our law specifically states in the Alternatives to Burning Section that WHEN THE FOREST IS DENSE WITH HIGH FUEL LOADS, as the USFS is claiming all of our un-burned forests to be, FIRE IS NOT AN OPTION. *(emph added)

WHEN DO YOU WANT YOUR SMOKE?

This is the trite quote the USFS invokes in educating the public, or otherwise pushing its WFU policies and plans literally down the throat and into the lungs of the trusting public. The quote itself describes a USFS wildfire management plan that violates NEPA and the CAA in that it does not consider present vs. future health impacts of alleged future catastrophic fires. We are simply told the same line over and over,, ad nauseum, in USFS YouTube propaganda videos and internet slide shows: unless we burn more now, we will have to breathe even more smoke in

the future. This is "the more smoke to get less smoke argument." But the USFS science to back-up this argument is uncertain, violating the NEPA and CAA.

This trite scientific argument, or position statement, violates NEPA because if forest fuel remedial measures are necessary they must be evenly distributed over present and future generations.

As the Washington University Journal of Law & Policy, Volume 32 New Directions in Environmental Law states:

"The primary purpose of NEPA was achieved upon its enactment: the articulation of a national statement of policy for the environment. Section 101 of NEPA established the policy goal -to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans."

And as recently reported in the Yakima Herald Republic Newspaper on September 13th, the USFS only intends on increasing WFU in the immediate and distant future:

"Prescribed fire is one of the best tools in our toolbox to stop living in dense wildfire smoke summer after summer," said Holly Krake, U.S. Forest Service public affairs officer. "While it seems counterintuitive, part of the solution to the intense wildfire problem in Eastern Washington is more fire, not less, and in the right ways and times."

"This program makes sure that we can start to do this at a larger scale and make sure we have people trained to do prescribed burns," said Nikolaj Lasbo, social and digital media manager for The Nature Conservancy.

Other prescribed burns are planned for the area starting in about two weeks, including the Naches Ranger District. Krake said on the day of a prescribed burn, the agency will post the location, potential smoke forecast and acreage for the fire by 9 a.m.

While the smoke from the prescribed burns may cause the air quality to decrease slightly, the health effects will be negligible and will not reach the unhealthy and hazardous levels seen this summer, Lasbo said.

Krake said there were no days where the air quality was at the unhealthy for sensitive groups level or worse during prescribed burns in the area last spring.

"The main thing to note coming off this really bad summer is how do you want your smoke and how bad do you want it to get?" Lasbo said. "Prescribed fires reduce fuel and reducing fuel means better air quality down the road in the case of a megafire."

In the analysis of whether smoke from a managed fire is not reasonably controllable or preventable, it should be noted that recent studies show that much of the science the USFS relies upon in making its fire management / smoke decisions (that it does not consider) is very uncertain. The only certainty the USFS will admit to regarding smoke science is that the USFS science is evolving, still uncertain and in need of continuing research. See the Joint Fire Science Program Smoke Science Plan Conclusion: Smoke Science Accomplishments Under the Plan, Final Report, 21 April 2017

One might question that if the smoke impacts of a wildfire are uncertain, that the fire is not reasonably controllable or preventable. However, all this Joint Fire Science Report tells us is that

the USFS is uncertain about its ability to predict smoke pollution from any given fire. In this respect, the USFS is playing a game of risk with the public's health. The USFS is intentionally managing fire activities for landscape purposes, the resulting smoke pollution of which it cannot with any certainty predict or forecast. This directly violates the NEPA and CAA, as the USFS knows there is risk of environmental or public harm being imposed upon the American public, and yet it does not attempt to comply with federal and state clean air laws by publishing intent and receiving notice as the administrative procedure act requires.

THE LITIGATION HISTORY OF THE USFS IS FINALLY SETTLED

THE TRUE ENVIRONMENTALISTS WHO WERE THE FLY IN THE USFS OINTMENT OF THE PAST TRADED THEIR CLEAN AIR, AS WELL AS THAT OF THE REST OF THE UNSUSPECTING PUBLIC, IN EXCHANGE FOR MORE ROADLESS AREAS. IN THIS WAY THEY KILLED 2 BIRDS WITH ONE STONE. THEY FINALLY OBTAINED THE USFS CAPITULATION TO BURN INSTEAD OF LOG FOREST FUELS, AND THEY OBTAINED MORE ROADLESS AREAS THAT WOULD MAKE IT MORE EXPENSIVE AND DIFFICULT FOR LOGGERS TO EXTRACT WOOD PRODUCT. THESE PEOPLE WOULD TRULY RATHER SEE IT BURN THAN THINNED BY LOGGING. BY THE TIME OF THE GREAT USFS LOGGING CAPITULATION, THE ARGUMENT OF THE CLEAR CUTTING OF THE PAST WAS LONG PULLED OFF THE NEGOTIATING TABLE AS MOOT

The "timber barons" are long dead now, or aged and worn down beyond their capacity to fight. The litigation that ensued when the timber industry was the largest special interest group in developing forest management policy was simple forest economics that supported many rural communities vs. idealistic and philosophical argument based upon environmental rabidity. Now it is the forest fire industry that is the largest special interest group.

The "environmentalists" who started all of the USFS previous litigation are now in control of the USFS, and they now want to tighten the ability to challenge environmental issues in Court. Now that they have finally won, are in complete control and without the threat of administrative public comment upon their new USFS fire science and its corresponding fire management policies and plans, they have no need to challenge their own environmental policies and plans. Now the new WFU USFS regime wants desperately to change the legal rules that helped them finally gain control of forest policy and cut off the ability of the public to litigate environment and public health transgressions.

This is very consistent with the official record without any speculation. As then Agricultural Secretary Vilsack stated in his environmentally famous of 2009:

"Unfortunately, the debate around the future of our forests and forest policy has been highly polarized for a long time. I don't need to remind anyone in Washington state about the debates around spotted owls, clearcutting and other forestry issues. But, given the threats that our forests face today, Americans must move away from polarization. We must work towards a shared vision -- a vision that conserves our forests and the vital resources important to our survival while wisely respecting the need for a forest economy that creates jobs and vibrant rural communities.

Yet, the Forest Service faces a number of barriers in pursuing a restoration agenda. The Forest Service has struggled for years with a budget that has forced management funds to be shifted to

fire fighting. We must do better. The Obama Administration is already working with Congress to ensure that the Forest Service has the funds it needs both to fight fires and to manage forests. shared 21 vision begins with restoration. Restoration means managing forest lands first and foremost to protect our water resources, while making our forests more resilient to climate change "

I do not personally believe that then President Obama could know of the dangerous air pollution the USFS then intended, and that this veiled statement portended.

But Secretary Vilsack continued:

A second barrier to accomplishing restoration is a history of distrust between environmentalists, the Forest Service and the forestry community. The result has been seemingly countless appeals of forest management activities and subsequent litigation. Certainly, litigation and appeals have served as a useful backstop against misplaced management decisions. But, given the scale of restoration that must occur, a shared vision built on collaboration will move us beyond the timber wars of the past. Litigation and conflict should become less prevalent because they are viewed as less necessary. Fortunately, that process has begun. In many regions today, the Forest Service charts a path forward by building trust among diverse stakeholders through collaboration and engagement.

In the short term, I have asked Chief Tidwell to initiate a process to develop new planning rules to guide the management of our National Forests consistent with the vision I have outlined today. Secondly, we will monitor progress towards protection of road less areas in the courts and will act to protect leadless areas as necessary.

This is where Secretary Vilsack arguably, knowingly or unknowingly, promised the then litigation friendly environmentalists that the USFS would throw into the trade not only more WFU, but also more road less areas in exchange for their votes and a ceasefire of ongoing litigation. This is very arguably how the USFS induced this one time adversary to trade a logging free forest for the health of their children, as well as that of the public.

Now, the current USDA secretary likes to blame "the environmentalists" on frustrating the USFS' WFU and "resulting air pollution." This is obviously a misdirected barb, as those that may be frustrating the USFF WFU policies are not "environmentalists" except in the sense that they wish to breathe clean air.

Response to Jurisdiction

Thank you very much for your comment. Prescribed burning is under the jurisdiction of the Washington State Department of Natural Resources (DNR). They are currently revising their Smoke Management Plan as a separate effort. There will be an opportunity to comment on that draft plan in the future. Your opinion is very important to the development of that plan. Please contact Jonathan Guzzo at DNR at jonathan.guzzo@dnr.wa.gov for information on how to participate in their process.

Changes to document based on Public Comments

Based on these comments we made the following changes to the public comment draft version:

- Some nonsubstantive changes to correct errors and provide clarification, including,

- Replacing “compliance determinations” with “regulatory decisions” in Executive Summary, Section 1 and Section 3.4.1 because “regulatory decisions” is the term used in the 2016 EER.
- This correction in Section 1: “Analyses comparing the event-influenced concentration to concentrations at the same monitoring site at other times to support item C above the clear causal relationship criteria;”
- The third paragraph in Section 2 to provide clarification on who WSU’s partners are: “Washington State University (WSU), Oregon State University and its partners USDA Agriculture Research Service (ARS) have studied Washington Columbia Plateau for more than 30 years.”
- We also revised the public comment period notices and related documents in Appendix E, including:
 - Notice on Ecology website.
 - Notice on BCAA website.
 - Email notices sent through Ecology “Air Quality Rule and State Implementation Plan Updates” Listserv and project specific distribution lists.
 - Ecology public involvement calendar.
 - Ecology blog posting (English and Spanish).
 - Legal notice and affidavit of publications.
- Based on the feedback we also updated tables (4 and 5, on pages 5 and 6 respectively) because we saw the need to show data illustrating the exceptional nature of the event. Previously, we used an outside source that did not capture all of the human-based emissions that we monitor.
- The final changes we made were to clarify language; spelling and grammar. And formatting the document for ADA accessibility and compliance.

Conclusion

Ecology asserts that the PM₁₀ exceedance recorded by the Kennewick and Yakima monitors on September 5, 6, and 7, 2017 qualifies for exclusion under the 2016 Exceptional Event Rule because:

- There was a clear causal relationship between the PM₁₀ exceedances measured in Kennewick and Yakima and the wildfire event.
- This demonstration conducted analyses comparing the event-influenced concentrations to historical concentrations at Kennewick and Yakima, which supported clear causal relationship between the PM₁₀ exceedances and the wildfire event.
- The event was not reasonably controllable or preventable due to the fact that the wildfires occurred predominantly on wildland and there was no evidence to the contrary found by Ecology.
- This wildfire event was a natural event because this wildfire event was not caused by any human activities and met the natural event definition under the EER.
- Ecology fulfilled all the procedural requirements in the EER.

Based on the evidence provided in this document, Ecology requests EPA support the exclusion of the PM₁₀ exceedances at Kennewick and Yakima on September 5, 6 and 7, 2017, when determining compliance with the PM₁₀ 24-hour NAAQS or other regulatory compliance purposes by placing concurrence flags on the data in the Air Quality System.

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Appendices

Wildfires that Caused Smoky Conditions on September 5, 6 and 7, 2017


| Fire # on Figure 8 | Wildfire Name | State | Responsible Unit | Total Acres Burned by Wildfire |
|--------------------|---------------------------------------|------------|---------------------------------------|--------------------------------|
| 1 | Orleans Complex | California | Six Rivers National Forest | 27,276 |
| 2 | Chetco Bar Fire | Oregon | Rogue River-Siskiyou National Forest | 191,125 |
| 3 | Horse Prairie | Oregon | Douglas Forest Protective Association | 16,436 |
| 4 | Falcon Complex | Oregon | Umpqua National Forest | 2,935 |
| 5 | Eclipse Complex | California | Klamath National Forest | 78,698 |
| 6 | Jones Fire | Oregon | Willamette National Forest | 10,114 |
| 7 | Salmon August Complex | California | Klamath National Forest | 65,888 |
| 8 | Helena Fire | California | Shasta-Trinity National Forest | 21,846 |
| 9 | Umpqua North Complex | Oregon | Umpqua National Forest | 43,158 |
| 10 | Miller Complex | Oregon | Rogue River-Siskiyou National Forest | 39,715 |
| 11 | Rebel Fire | Oregon | Willamette National Forest | 8,703 |
| 12 | Whitewater Fire | Oregon | Willamette National Forest | 14,451 |
| 13 | Fork Fire | California | Shasta-Trinity National Forest | 3,484 |
| 14 | Potato Hill Fire | Oregon | Willamette National Forest | 199 |
| 15 | Staley Fire | Oregon | Willamette National Forest | 2,300 |
| 16 | North Pelican Fire | Oregon | Fremont-Winema National Forest | 3,450 |
| 17 | Norse Peak Fire | Washington | Okanogan/Wenatchee National Forest | 55,909 |
| 18 | Horse Creek Complex | Oregon | Willamette National Forest | 42,489 |

| Fire # on Figure 8 | Wildfire Name | State | Responsible Unit | Total Acres Burned by Wildfire |
|-------------------------------|---------------------------------------|--------------|---|---|
| 19 | Eagle Creek Fire | Oregon | Columbia River Gorge National Scenic Area | 48,861 |
| 20 | East Crater Fire | Washington | Gifford Pinchot National Forest | 483 |
| 21 | Milli Fire | Oregon | Deschutes National Forest | 24,079 |
| 22 | High Cascades Complex | Oregon | Rogue River-Siskiyou National Forest | 27,476 |
| 23 | Indian Creek Fire | Oregon | Mt. Hood National Forest | 373 |
| 25 | American Fire | Washington | Okanogan/Wenatchee National Forest | 3,853 |
| 26 | McKay 1035 NE | Oregon | Deschutes National Forest | 1,221 |
| 27 | Jolly Mountain Fire | Washington | Okanogan/Wenatchee National Forest | 36,808 |
| 28 | Nash Fire | Oregon | Willamette National Forest | 6,738 |
| 29 | Jade Creek Fire | Oregon | Fremont-Winema National Forest | 782 |
| 30 | Diamond Creek Fire | Washington | Okanogan/Wenatchee National Forest | 128,272 |
| 31 | Uno Peak Fire | Washington | Okanogan/Wenatchee National Forest | 8,726 |
| 32 | R-4 Fire | California | Northern California District | 18,618 |
| 39 | Bridge Creek Fire | Washington | Colville Agency | 3,711 |
| 43 | Strychnine Fire | Idaho | Idaho Department of Lands | 1,010 |
| 44 | Hanover Fire | Idaho | Nez Perce - Clearwater National Forests | 26,500 |
| 45 | Andys Hump Fire | Idaho | Nez Perce - Clearwater National Forests | 1,056 |
| 46 | Moose Peak Fire | Montana | Kootenai National Forest | 13,903 |
| 47 | Highway 200 Complex | Montana | Lolo National Forest | 48,417 |
| 48 | Caribou Fire | Montana | Kootenai National Forest | 24,753 |
| 49 | Immigrant Fire | Idaho | | 312 |
| 50 | Bearskin Fire | Idaho | Boise National Forest | 30,251 |
| 51 | Moose Creek 1 Fire | Idaho | Nez Perce - Clearwater National Forests | 17,395 |

| Fire # on Figure 8 | Wildfire Name | State | Responsible Unit | Total Acres Burned by Wildfire |
|-------------------------------|---|--------------|--|---|
| 52 | West Fork Fire | Montana | Kootenai National Forest | 20,072 |
| 53 | McCully Fire | Montana | Montana Department of Natural Resources & Conservation | 637 |
| 54 | Hidden Fire | Idaho | Nez Perce - Clearwater National Forests | 12,261 |
| 55 | Highline Fire | Idaho | Payette National Forest | 84,619 |
| 56 | Sunrise Fire | Montana | Lolo National Forest | 26,310 |
| 57 | Adair Peak Fire | Montana | Glacier National Park | 4,074 |
| 58 | Nelson Creek | Montana | Bitterroot National Forest | 280 |
| 59 | Gibraltar Fire | Montana | Kootenai National Forest | 12,938 |
| 60 | Blue Bay Fire | Montana | Flathead Agency | 490 |
| 61 | Lolo Peak Fire | Montana | Lolo National Forest | 53,902 |
| 62 | Liberty Fire | Montana | Flathead Agency | 28,689 |
| 63 | Sprague Fire | Montana | Glacier National Park | 16,982 |
| 64 | Meyers Fire | Montana | Beaverhead/Deerlodge National Forest | 62,034 |
| 65 | Sapphire Complex-Little Hogback | Montana | Lolo National Forest | 43,733 |
| 66 | Rice Ridge Fire | Montana | Lolo National Forest | 160,187 |
| 67 | Crucifixion Creek Fire | Montana | Helena - Lewis and Clark National Forest | 11,008 |
| 68 | Wolverine Fire | Montana | | 3,010 |
| 70 | Alice Creek Fire | Montana | Helena - Lewis and Clark National Forest | 29,252 |
| 71 | Conrow Fire | Montana | Beaverhead/Deerlodge National Forest | 2,741 |
| 75 | East Fork Fire | Montana | Montana Department of Natural Resources & Conservation | 21,896 |
| 77 | Painted Hill Fire | Montana | | 2,496 |
| 78 | Red Butte | Montana | | 700 |

Appendix A. Air Quality Alerts Messages

From: [AccuWeather.com Alert](#)
To: [Sun, Caroline \(ECY\)](#)
Subject: AccuWeather.com Alert(bn) (adca347342496)
Date: Monday, September 04, 2017 12:31:19 PM



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AIR QUALITY ALERT MESSAGE
Washington State Department of Ecology
RELAYED BY NATIONAL WEATHER SERVICE PENDLETON OR
1230 PM PDT Mon Sep 4 2017
...AIR QUALITY ALERT IN EFFECT UNTIL NOON PDT WEDNESDAY...

The Washington State Department of Ecology has issued an Air Quality Alert...in effect until noon PDT Wednesday.

A Smoke Air Quality Alert remains in effect. Wildfires burning in the region combined with forecast conditions will cause air quality to remain at unhealthy levels.

Pollutants in smoke can cause burning eyes...runny nose...aggravate heart and lung diseases...and aggravate other serious health problems. Limit outdoor activities. Please follow medical advice if you have a heart or lung condition.

Information about air quality is on the Washington Department of Ecology Web site at <http://www.ecy.wa.gov/air.html> or call 360-407-6000.




You are receiving this email because you are subscribed to receive daily forecast information from AccuWeather.com at the following account:
[\(adca347342496\) email_casu461@ecy.wa.gov](#)

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If you need assistance with our service, please visit our [FAQ page](#) or send an e-mail to webhelp@accuweather.com

We welcome all feedback and suggestions. Please write to us at:
AccuWeather.com
385 Science Park Road
State College, PA 16803

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From: [AccuWeather.com Alert](#)
To: [Sun, Caroline \(ECY\)](#)
Subject: AccuWeather.com Alert(bn) (adca347342496)
Date: Tuesday, September 05, 2017 9:54:23 AM



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Kennewick, WA

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AIR QUALITY ALERT MESSAGE

Washington State Department of Ecology
RELAYED BY NATIONAL WEATHER SERVICE PENDLETON OR
953 AM PDT Tue Sep 5 2017
...AIR QUALITY ALERT IN EFFECT UNTIL NOON PDT FRIDAY...

The Washington State Department of Ecology has issued an Air Quality Alert...in effect until noon PDT Friday.

A Smoke Air Quality Alert has been issued. Wildfires burning in the region combined with forecast conditions will cause air quality to remain at unhealthy levels.

Pollutants in smoke can cause burning eyes...aggravate heart and lung diseases...and aggravate other serious health problems. Limit outdoor activities. Please follow medical advice if you have a heart or lung condition.

Information about air quality is on the Washington Department of Ecology Web site at <http://www.ecy.wa.gov/air.html> or call 360-407-6000.



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From: [AccuWeather.com Alert](#)
To: [Sun, Caroline \(ECY\)](#)
Subject: AccuWeather.com Alert(bn) (adca347342496)
Date: Wednesday, September 06, 2017 8:56:16 AM



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Kennewick, WA

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AIR QUALITY ALERT MESSAGE
Washington State Department of Ecology
RELAYED BY NATIONAL WEATHER SERVICE PENDLETON OR
855 AM PDT Wed Sep 6 2017
...AIR QUALITY ALERT IN EFFECT UNTIL NOON PDT FRIDAY...

The Washington State Department of Ecology has issued an Air Quality Alert...in effect until noon PDT Friday.

A Smoke Air Quality Alert remains in effect. Wildfires burning in the region combined with forecast conditions will cause air quality to remain at unhealthy levels.

Pollutants in smoke can cause burning eyes...runny nose...and aggravate heart and lung diseases. Limit outdoor activities.

Information about air quality is on the Washington Department of Ecology Web site at <http://www.ecy.wa.gov/air.html> or call 360-407-6000.



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From: [AccuWeather.com Alert](#)
To: [Sun, Caroline \(ECY\)](#)
Subject: AccuWeather.com Alert(bn) (adca347342496)
Date: Friday, September 08, 2017 9:22:17 AM



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AIR QUALITY ALERT MESSAGE

Washington State Department of Ecology

RELAYED BY NATIONAL WEATHER SERVICE PENDLETON OR

921 AM PDT Fri Sep 8 2017

...AIR QUALITY ALERT IN EFFECT UNTIL 10 AM PDT MONDAY...

The Washington State Department of Ecology has issued an Air Quality Alert...in effect until 10 AM PDT Monday.

A Smoke Air Quality Alert has been issued. Wildfires burning in the region combined with forecasted conditions will cause air quality to reach unhealthy levels.

Pollutants in smoke can cause burning eyes...runny nose...aggravate heart and lung diseases...and aggravate other serious health problems. Limit outdoor activities and keep children indoors if it is smoky. Please follow medical advice if you have a heart or lung condition.

Conditions could temporarily improve this weekend with increased westerly winds.

Information about air quality is on the Washington Department of Ecology Web site at <http://www.ecy.wa.gov/air.html> or call 360-407-6000.



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Air Quality Alert Issued for Yakima Area

August 29, 2017

By [John Fannin](https://www.yakimawa.gov/media/news/author/jfannin/) (<https://www.yakimawa.gov/media/news/author/jfannin/>)

The Washington State Department of Ecology has issued an air quality alert for the Yakima area that is in effect until 10:00 am Thursday, August 31st.

The alert is due to wildfires burning in the region, combined with forecasts that call for conditions that could cause air quality to reach unhealthy levels.

Pollutants in smoke can cause burning eyes, runny nose, and aggravate serious health problems such as heart and lung diseases.

Children, the elderly, and individuals with respiratory illnesses are most at risk of serious health effects during the air quality alert.

The alert calls for limiting outdoor activities and keeping children indoors if the air quality is poor.

Information about air quality is available at www.ecy.wa.gov/air.html (<http://www.ecy.wa.gov/air.html>)

[Air Quality Alert – News Release](https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-News-Release-1.pdf) (<https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-News-Release-1.pdf>)

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- [March 2018](https://www.yakimawa.gov/media/news/2018/03/) (<https://www.yakimawa.gov/media/news/2018/03/>) (28)
- [February 2018](https://www.yakimawa.gov/media/news/2018/02/) (<https://www.yakimawa.gov/media/news/2018/02/>) (34)
- [January 2018](https://www.yakimawa.gov/media/news/2018/01/) (<https://www.yakimawa.gov/media/news/2018/01/>) (23)

Air Quality Alert, Heat Advisory Issued for Yakima Area

September 1, 2017

By [John Fannin](https://www.yakimawa.gov/media/news/author/jfannin/) (<https://www.yakimawa.gov/media/news/author/jfannin/>)

State and federal agencies are expressing concerns about smoke and heat in the region heading into the Labor Day weekend.

The Washington State Department of Ecology has issued an air quality alert for the Yakima area that is in effect until 12:00 pm next Wednesday, September 6th.

The alert is due to wildfires burning in the region, combined with forecasts that call for conditions that could cause air quality to reach unhealthy levels.

Pollutants in smoke can cause burning eyes, runny nose, and aggravate serious health problems such as heart and lung diseases.

Children, the elderly, and individuals with respiratory illnesses are most at risk of serious health effects during the air quality alert.

The alert calls for limiting outdoor activities and keeping children indoors if the air quality is poor.

It comes on the heels of a heat advisory the National Weather Service (NWS) has also issued for the Yakima area. It is in effect from 12:00 pm tomorrow, Saturday, through 8:00 pm on Monday, September 4th.

Yakima temperatures could reach as high as 102 degrees, according to the NWS.

Weather officials encourage residents to schedule strenuous activities over the next few days in the early morning or evening during the heat advisory. The NWS advisory also suggests residents take extra precautions such as drinking plenty of fluids, staying out of the sun and checking up on relatives and neighbors.

[Air Quality Alert, Heat Advisory – News Release](https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Heat-Advisory-News-Release.pdf) (<https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Heat-Advisory-News-Release.pdf>)

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Air Quality Alert Extended for Yakima Area

September 5, 2017

By [John Fannin](https://www.yakimawa.gov/media/news/author/jfannin/) (<https://www.yakimawa.gov/media/news/author/jfannin/>)

The Washington State Department of Ecology is extending an air quality alert for the Yakima area that is in effect until 12:00 pm on Friday, September 8th.

The alert, originally scheduled to end Wednesday, September 6th, is due to wildfires burning in the region, combined with forecasts that call for conditions that could cause air quality to reach unhealthy levels.

Pollutants in smoke can cause burning eyes, runny nose, and aggravate serious health problems such as heart and lung diseases.

Children, the elderly, and individuals with respiratory illnesses are most at risk of serious health effects during the air quality alert.

The alert calls for limiting outdoor activities and keeping children indoors if the air quality is poor.

Information about air quality is on the Washington Department of Ecology website at <http://www.ecy.wa.gov/air.html> or by calling 360-407-6000.

[Air Quality Alert Extended – News Release](https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Extended-News-Release.pdf) (<https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Extended-News-Release.pdf>)

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- [January 2018](https://www.yakimawa.gov/media/news/2018/01/) (<https://www.yakimawa.gov/media/news/2018/01/>) (23)

Air Quality Alert Extended Through Monday

September 8, 2017

By [John Fannin](https://www.yakimawa.gov/media/news/author/jfannin/) (<https://www.yakimawa.gov/media/news/author/jfannin/>)

The Washington State Department of Ecology is extending an air quality alert for the Yakima area that is in effect until 10:00 am on Monday, September 11th.

The alert is due to wildfires burning in the region, combined with forecasts that call for conditions that could cause air quality to reach unhealthy levels.

Pollutants in smoke can cause burning eyes, runny nose, and aggravate serious health problems such as heart and lung diseases.

Children, the elderly, and individuals with respiratory illnesses are most at risk of serious health effects during the air quality alert.

The alert calls for limiting outdoor activities and keeping children indoors if the air quality is poor.

The National Weather Service said air quality conditions could temporarily improve this weekend due to increased westerly winds.

Information about air quality is on the Washington Department of Ecology website at <http://www.ecy.wa.gov/air.html> or by calling 360-407-6000.

[Air Quality Alert Extended Through Monday – News Release](https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Extended-Through-Monday-News-Release.pdf)

(<https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Extended-Through-Monday-News-Release.pdf>)

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Air Quality Alert Continues Through Wednesday

September 11, 2017

By [John Fannin](https://www.yakimawa.gov/media/news/author/jfannin/) (<https://www.yakimawa.gov/media/news/author/jfannin/>)

The Washington State Department of Ecology is extending an air quality alert for the Yakima area that is in effect until 10:00 am on Wednesday, September 13th. It was scheduled to end at 10:00 am today, Monday.

The alert applies to a three-county area that includes Yakima, Kittitas and Klickitat counties. It is due to wildfires burning in the region, combined with forecasts that call for conditions that could cause air quality to reach unhealthy levels.

The National Weather Service said pollutants in smoke can cause burning eyes, runny nose, and aggravate serious health problems such as heart and lung diseases.

Children, the elderly, and individuals with respiratory illnesses are most at risk of serious health effects during the air quality alert.

The alert calls for limiting outdoor activities and keeping children indoors if the air quality is poor.

Information about air quality is on the Washington Department of Ecology website at <http://www.ecy.wa.gov/air.html> or by calling 360-407-6000.

[Air Quality Alert Continues – News Release](https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Continues-News-Release.pdf) (<https://www.yakimawa.gov/media/news/wp-content/blogs.dir/6/files/sites/6/Air-Quality-Alert-Continues-News-Release.pdf>)

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Appendix B. Benton Clean Air Agency Press Release



BENTON
CLEAN AIR AGENCY

*For more information, please contact
Benton Clean Air Agency
509.783.1304*

Press Release

FOR IMMEDIATE RELEASE

September 5, 2017

Benton Clean Air Agency Issues Air Quality Alert Wildfire Smoke

Benton Clean Air Agency has issued an air quality alert. Air Quality has reached unhealthy (red)/very unhealthy (purple) levels as a result of the smoky conditions we are experiencing. Most of the smoke is coming from fires west and south of us in Washington, Oregon and California.

Individuals should consider air quality conditions before conducting activities outdoors. This applies everyone, especially to those who are sensitive to air pollution. Sensitive groups include older adults, children, people who work or exercise outdoors, and those with heart conditions and respiratory ailments such as asthma, bronchitis and emphysema. Everyone else should reduce outdoor activities.

Due to the current air quality conditions all outdoor burning is illegal.

Air quality can change quickly; current air quality information can be viewed at our website www.bentoncleanair.org on the home page, for more detail follow the links just to the right of the dial for Washington Air Quality Advisory.

Updated statewide information including health guidance can be found at <http://wasmoke.blogspot.com/> ; Washington Smoke Information.

Updated weather information, including Air Quality Alerts from the National Weather Service can be found at <http://www.weather.gov/pdt/>.

end

• 526 South Steptoe Street • Kennewick, Washington 99336 • Fax Number 509-783-6562
Phone: 509.783.1304 • Website: www.bentoncleanair.org

Appendix C. Yakima Regional Clean Air Agency News Release



Yakima Regional Clean Air Agency
329 North First Street, Yakima WA 98901
(509) 834-2050 yakimacleanair.org

For immediate release;

***Thursday August 31, 2017
Burn Restriction Issued
Stage 1- Burn Ban
Effective Today at 9:00 AM***

A Stage 1 burn ban has been called by the Yakima Regional Clean Air Agency's Air Pollution Control Officer due to wildfire smoke that continues to inundate the Yakima Valley. The burn ban applies to all outdoor and agricultural burning in Yakima County* until further notice.

Under a Stage 1 burn ban:

- All outdoor burning is prohibited throughout Yakima County*.
- All violations of the burn ban are subject to civil penalty.

This temporary restriction is due to the buildup of air pollution and current weather conditions. This burn ban may be upgraded or removed depending on air quality and weather conditions; please check our website for the latest information, www.yakimacleanair.org

*** Please Note: Restrictions may differ within the exterior boundaries of the Yakama Reservation**

Thank you for your cooperation.

Mark Edler
Yakima Regional Clean Air Agency
509-834-2050 ext. 110
mark@yrcaa.org

Appendix D. Media Reports

Pacific Northwest Fires Smother Region in Smoke and Ash - The New York Times

Page 1 of 8

The New York Times

Pacific Northwest Fires Smother Region in Smoke and Ash



A wildfire near Cascade Locks, Ore., near the Columbia River, on Tuesday.
Genna Martin/seattlepi.com, via Associated Press

By Matt Stevens (<https://www.nytimes.com/by/matt-stevens>) Sept. 6, 2017

Dozens of wildfires that have been raging across the Pacific Northwest flared up this week, unfurling a blanket of opaque smoke from the Cascades to the coast and raining ash down on cars, streets and people.

The blazes have forced evacuations and prompted the governor of Washington to declare a state of emergency (http://governor.wa.gov/sites/default/files/proclamations/proc_17-12.pdf); the skies have turned a disorienting color of brownish-orange, and the air smells of burned wood.

<https://www.nytimes.com/2017/09/06/us/wildfires-oregon-washington.html>

1/25/2018



Smoke from the Eagle Creek fire near the Bonneville Dam on the Columbia River in Oregon on Tuesday. Mark Graves/The Oregonian, via Associated Press

“If you look outside, you might think it’s just clouds,” said Logan Johnson, a meteorologist with the National Weather Service’s Seattle office. The downpour of salt-and-pepper ash, he added, is like “nothing we’ve observed in quite some time.”

Meteorologists say it has been an unusually dry summer in a region known for rain. It has not rained significantly in Seattle since June, Mr. Johnson said, and meteorologists say it has been more than 50 days since measurable precipitation fell in Portland, Ore.

Instead, a strong ridge of high pressure has settled over much of the Pacific Northwest, heating the air and blocking storms from entering the area. As a result, trees, grass and other foliage have dried out, creating fuel that officials say is ripe for ignition if lightning strikes or sparks fly.





Main Street in Walla Walla, in eastern Washington near the Oregon and Idaho borders, was shrouded in smoke from growing wildfires in neighboring Oregon.

Greg Lehman/Walla Walla Union-Bulletin, via Associated Press

David Bishop, a meteorologist with the service's office in Portland, estimated that about 35 fires were active across the region. Gusty winds helped spread several of them on Monday night, sending a layer of smoke and a downpour of ash into cities like Portland and Seattle.

<https://twitter.com/NatStClair/status/905162189790576640>
(<https://twitter.com/NatStClair/status/905162189790576640>)

In Oregon, officials say the Chetco Bar Fire has burned more than 175,000 acres of wilderness since July 12. The Eagle Creek Fire, about 40 miles east of Portland, has burned about 30,000 acres since Saturday and forced several nearby communities to evacuate.

The Diamond Creek Fire, meanwhile, has scarred about 105,000 acres of north central Washington and crossed into Canada; the Norse Peak Fire has scorched almost 45,000 acres near Mount Rainier.

Fascinated locals have snapped photos of the strangely colored skies and rubbed their fingers across their vehicles until they turned dark with soot — as if to prove that the bizarre conditions were real.





Eagle Creek Fire spreads from Oregon to Washington overnight (1/3)

LOCAL

UPDATE: Smoke overwhelms Tri-City skies, little relief in sight

BY ANNETTE CARY
acary@tricityherald.com

SEPTEMBER 05, 2017 9:02 AM

A choking fog of grayish smoke settled Tuesday over the Tri-Cities, forcing children off playgrounds and outdoor workers to put on respirator masks.

And it's not expected to clear out for days.

The air quality in the Tri-Cities deteriorated to a level rated as "very unhealthy" at times.

ADVERTISING



Replay

In the morning everyone was advised to stay indoors and those who could not avoid being outside were told to consider wearing an N-95 respirator mask, according to information from the Washington State Department of Ecology. Many hardware stores sell the masks.

Latest news by email

This afternoon's latest local news

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"There is not a lot we can do but wait it out," said Alex Sligar, air quality specialist with the Benton Clean Air Agency. "People need to take precautions."

Schools canceled outdoor recesses and physical education classes were moved indoors on Tuesday. Sports practices also were moved inside or canceled, and most outdoor sports matches were canceled or postponed.

By Tuesday afternoon there had been some improvement, but the air remained smoky enough to be rated as "unhealthy" according to the Benton Clean Air Agency.

Wildfires raging across the West were fouling the air from Washington state to the Great Lakes, said Rob Rodgers, air quality engineer with the Benton Clean Air Agency.

Smoke from fires in California and Oregon was moving north and then being channeled east, including down the Columbia River Gorge, he said.



Smoke from wildfires blanketed most of Washington state on Sept. 5.
Courtesy NASA

10/12/2017

Smoke drops air quality to unhealthy in Tri-Cities | Tri-City Herald

More smoke was being picked up from the Eagle Creek fire burning in the Columbia gorge. A section of Interstate 84 between Portland and the Tri-Cities was closed.

Later in the day the Benton Clean Air Agency said fires throughout the region — including in Washington, Idaho, Oregon, Montana, California and British Columbia — were contributing to smoky air.

The sky over the Tri-Cities Tuesday was gray and the smell of smoke smothered the area.

Everyone — not just children, older adults and those with chronic illnesses — can expect to experience health effects from the smoke when it is rated as unhealthy, according to an advisory from the Benton-Franklin Health District.

RELATED STORIES FROM TRI-CITY HERALD

Watch: Do you know which air mask to use?

Everyone should limit time spent outdoors and put off strenuous activity indoors until air quality improves, it said.

The National Weather Service extended an air quality alert for the Tri-City area through noon Friday and it could be extended again. Its forecast showed widespread haze over the Tri-Cities at least through the next weekend and into Monday.



Hermelinda Magaña of the United States Postal Service delivers mail while wearing a respiratory mask in Kennewick on Tuesday. Magaña said the post office gave all its employees face mask to keep them safe from breathing in smoke.

Noelle Ram-Gomez - Tri-City Herald

Some improvement in air quality may be seen sometime from Thursday night through the weekend, as a high pressure system over the Tri-Cities shifts to the east, according to the weather service.

It could allow smoky air to mix with air blowing in from the west and southwest.

However, air quality could still be problematic, especially if fires to the west and southwest of the Tri-Cities continue to burn, sending more smoke over the Tri-Cities.

The hazy skies were moderating temperatures in the Tri-Cities, including keeping the temperature at the Pasco airport below 90 degrees late Tuesday afternoon.

Washington State Department of Ecology and Benton Clean Air Agency sites with air quality data were being overwhelmed by people searching for information on Tuesday. However, the AirNow site of the Environmental Protection Agency continued to operate at bit.ly/AirNowWA.



Wildfire still is ravaging forest Tuesday behind Bonneville Dam and across the area near Stevenson, Wash. The Eagle Creek fire, shown here Monday night from across the Columbia River Gorge, closed Interstate 84 and continues to burn out of control on both sides of the river. The fire started in Oregon.
Tristan Fortsch - AP

The Wednesday farmers market in downtown Pasco has been canceled because of the smoky air.

Most Tri-City-area schools were following the health district's recommendation to suspend outdoor activities on Tuesday. The district also recommended that daycare centers and preschools keep children indoors and keep activity levels light.

Principals at Richland and Pasco schools were advised by district officials to make sure students were not waiting in lines outside buildings. They also reminded students and staff to drink plenty of fluids to keep lungs hydrated.

"The safety of students and staff is a priority and we will continue to monitor the air quality advisories regularly and make any adjustment," the Kennewick School District said in an announcement.

Annette Cary: 509-582-1533, @HanfordNews

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Watch: Do you know which air mask to use? 1:43

LOCAL

Out with the old smoke — but here comes the new. And it could stick around

BY ANNETTE CARY AND AND JAKE DORSEY
acary@tricityherald.com

SEPTEMBER 07, 2017 9:38 AM

Don't expect the horizon to be any clearer Friday.

The Tri-Cities, hemmed in by wildfires in Oregon and Idaho, let alone Washington, can expect to see little to no change in air quality, according to U.S. Department of Agriculture forecaster Rick Graw.

Wind patterns from a mild weather system that meteorologists have been expecting will blow from the south, bringing new smoke with it as it pushes out old smoke in the morning.

ADVERTISING



By afternoon, the system is predicted to slow further still, leaving Benton and Franklin counties socked in. Some outdoor school and entertainment events have been canceled or postponed.

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This afternoon's latest local news

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Most schools are waiting until noon Friday to make a final decision.

At the same time, the USDA predicts more severe fire weather across the east side of the state.

That means firefighters will get no help in controlling the blazes — especially the Jolly Mountain fire near Cle Elum.

As of 6 p.m. Thursday, the Tri-Cities' air quality was stuck at "very unhealthy," according to the Benton Clean Air Agency.

Everyone should stay indoors, do only light activities and keep windows closed, they advised.

The National Weather Service's air quality alert will remain in effect until noon Friday.

There could be some slight improvement as the day warms, said Tyler Thompson, air quality specialist at the Benton Clean Air Agency. Air quality typically deteriorates at night and improves during the day.

The National Weather Service predicts patchy smoke to stick around until at least Wednesday.

New low-visibility records could be broken by the smoke, with a record already set in August.

Last month, the Hanford Meteorological Service recorded 10 days with visibility of less than six miles and as little as three-quarters of a mile because of wildfire smoke. The previous record was eight days in September 2012.

The Washington State Patrol is asking drivers to turn on their lights during the day for better visibility on roadways.

RELATED STORIES FROM TRI-CITY HERALD



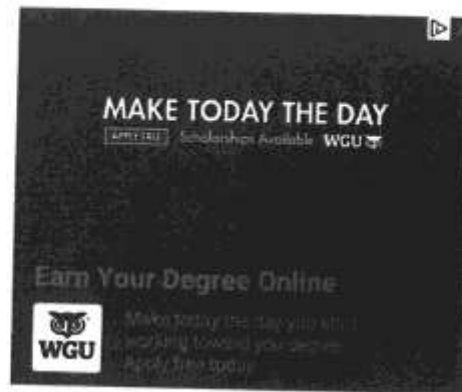
Photo gallery of the Columbia Gorge, Northwest wildfires

Interstate 84 on the Oregon side of the Columbia River Gorge remained closed Thursday between Hood River and Troutdale. And the Historic Columbia River Highway that parallels I-84 also is closed indefinitely because of fallen rocks and trees.

Oregon was still diverting traffic, except commercial trucks, to take Highway 14 on the Washington side of the river.

Health officials say those who must be outdoors in the smoke should wear an N-95 respirator mask, which may be purchased at hardware stores, though some report being sold out.

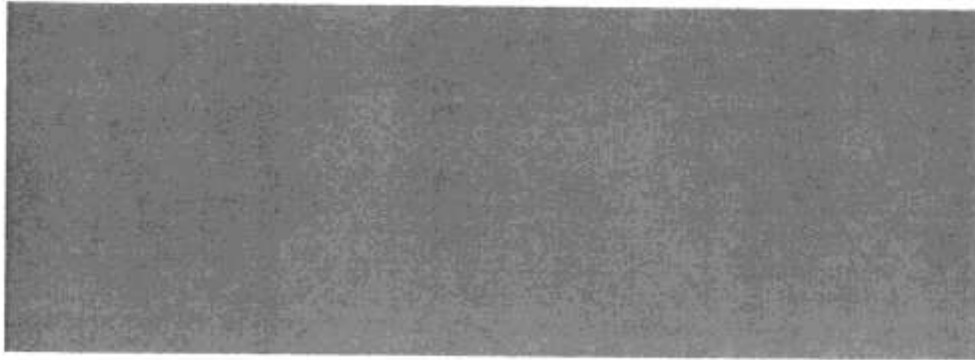
People with chronic illnesses or who have had a stroke are particularly at risk when air quality is poor.



https://www.yakimaherald.com/news/local/jolly-mountain-fire-now-five-percent-contained-schools-closed-because/article_f990d9b4-93f1-11e7-9dc5-33baa36badb5.html

Jolly Mountain fire now five percent contained; schools closed because of air quality

Yakima Herald-Republic Sep 7, 2017



Update 12:30 p.m. - The Ellensburg and Kittitas School Districts will close schools until at least Monday, Sept. 11 after indoor air quality testing found "unhealthy" to hazardous" readings.

Update 11:46 a.m. - The arrival of the Washington National Guard Wednesday helped operations bring the Jolly Mountain fire to 5 percent containment.

More than 800 personnel are now working the fire, according to the federal incident commander coordinating firefighting operations. Firefighters plan to spend the day working to assess and protect structures while preparing containment and contingency lines along Cle Elum Ridge.



Yakima, WA: This Unbelievable, Tiny Company Is Disrupting A \$200 Billion Industry

EVERQUOTE

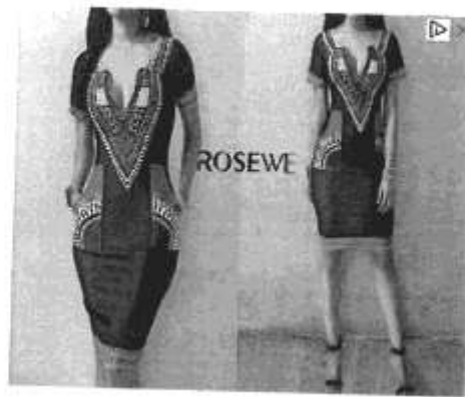
A community briefing is planned for 6 p.m. Thursday at the Walter Strom Middle School gymnasium, located at 2694 State Route 903 in Cle Elum.

Update 11:10 a.m. - On a fire line of the Jolly Mountain Fire patches of small flames are visible between the towering evergreens and thick underbrush that make up the rugged backwood country of Kittitas County.

This particular line, absent of wind and fire personnel, is mostly quiet save the crackling of flames inching toward the asphalt road where crews had cleared the underbrush to prevent the fire from jumping the road

Occasionally, a pop loud enough to suddenly to turn the heads of firefighters breaks the silence.

More ominous was the "whoosing" sound from deeper in the woods as fire ignited debris at the base of some trees, before spreading rapidly upward consuming it in flames.



Firefighters call this process, "torching," and it's aptly named: The sound the fire makes as it engulfs the crowns of trees is reminiscent to that of a blowtorch.

For more scenes from the fire line, as well as updates on progress on major fires burning in Yakima and Kittitas counties, keep checking back with the Yakima Herald-Republic.

Update 10: a.m. Modest growth was reported overnight on two major forest fires burning in Yakima and Kittitas counties.

Two Washington National Guard crews are today expected to join the battle against the Norse Peak Fire, which grew from 43,485 acres on Wednesday to 46,882 this morning. The fire, which is burning about 11 miles north of Cliffdell off Chinook Pass, is 8 percent contained.

Crews ran the sprinkler systems at Gold Hill as well as laid the ground work for similar setups throughout the Pierce County side of the fire. Work was completed on hose and sprinkler systems in several areas around Bumping Lake including the historic cabin and Boy Scout camp at Goose Prairie. Work will continue there today as well.



Interactive wildfire map



Leaflet | Map tiles by Stamen Design, CC BY 3.0 — Map data © OpenStreetMap

MODIS fire detections indicate a fire reported somewhere within the 1 kilometer square area indicated and are updated every six hours by NASA's Aqua and Terra satellites. VIIRS fire detections have a sensitivity of 375 meters and are updated every two hours. Both MODIS and VIIRS sensors may be blocked by smoke, clouds, storms or other atmospheric conditions. The wildfire perimeters displayed in yellow show the latest available mapping as recorded by aircraft and firefighters on the ground. Not every fire will have a mapped perimeter, and those perimeters are only updated as needed and as resources are available.

In Kittitas County, the Jolly Mountain Fire grew from 25,514 acres on Wednesday to 26,325 acres today. It is 5 percent contained.

Appendix E. Governor Inslee Declaration of Statewide Wildfire Emergency

JAY INSLEE
Governor



PROCLAMATION BY THE GOVERNOR

17-12

WHEREAS, since June 2017, we have experienced drier than normal weather conditions with periods of above average temperatures throughout the State which, when combined with projected weather and fire fuel conditions for early September, present a high risk of severe wildfires throughout the State of Washington; and

WHEREAS, current weather forecasts predict continuing elevated temperatures throughout the State for the next seven days, providing hot and dry conditions that, combined with the existing high-risk fire fuel conditions, support an active burning environment capable of producing significant multiple wildfires requiring the need for additional immediate response throughout the State; and

WHEREAS, the Jolly Mountain Fire in Kittitas County, which has been burning since August 11, has grown to over 14,500 acres and is threatening local communities, homes and businesses, resulting in road closures and the issuance of evacuation notices by local authorities for some threatened areas; and

WHEREAS, the threat to life and property from existing and threatened wildfires throughout the State is extreme and could cause extensive damage to homes, public facilities, businesses, public utilities, and infrastructure impacting the life and health of people throughout Washington State, all of which affect life, health, property, or the public peace, and is a public disaster demanding immediate action; and

WHEREAS, current availability of firefighting resources throughout the state of Washington and the western United States is limited due to existing and projected fire conditions and activities throughout the region, and existing firefighting resources may already be committed to fighting wildfires throughout the Pacific Northwest; and

WHEREAS, because available firefighting resources may not be adequate to address the outbreak of simultaneous large wildfires resulting from the above noted conditions, the Washington National Guard and State Guard may be needed to assist local jurisdictions and state agencies throughout the state of Washington with this public disaster and for the public health, safety and welfare; and

WHEREAS, the Washington Military Department has activated the State Emergency Operations Center, implemented response procedures, is coordinating resources to support state and local officials in alleviating the immediate social and economic impacts to people, property and infrastructure, and is continuing to assess the wildfire danger resulting from existing high risk weather and fire fuel conditions.

NOW, THEREFORE, I, Jay Inslee, Governor of the state of Washington, as a result of the above-noted situation, and under Chapters 38.08, 38.52 and 43.06 RCW, do hereby proclaim that a State of Emergency exists in all Counties in the state of Washington, and direct the plans and procedures of the *Washington State Comprehensive Emergency Management Plan* be implemented. State agencies and departments are directed to utilize state resources and to do everything reasonably possible to assist affected political subdivisions in an effort to respond to and recover from the incidents.

As a result of this event, I also hereby order into active state service the organized militia of Washington State to include the National Guard and the State Guard, or such part thereof as may be necessary in the opinion of The Adjutant General, to perform such duties as directed by competent authority of the Washington Military Department in addressing this event. Additionally, the Washington State Emergency Operations Center is instructed to coordinate all incident-related assistance to the affected areas.

Signed and sealed with the official seal of the state of Washington on this 2nd day of September A.D., Two Thousand and Seventeen at Olympia, Washington.

By:

/s/

Jay Inslee, Governor

BY THE GOVERNOR:

/s/

Secretary of State

Appendix F. Washington Smoke Blog

Washington Smoke Information

Page 1 of 10

More Red Blogs Create Blog

Washington Smoke Information

This site is an effort by county, state, and Federal agencies and Indian Tribes to coordinate and aggregate information for Washington communities affected by smoke from wildland fires. The information is posted here by the agencies themselves while volunteers built and maintain the page.



*The map above is not able to display all state air quality monitors. Click here to see all monitors in Washington: [WA Ecology Air Monitors](#)

Note: Some users might notice intermittent discrepancies in colors shown on the map of air quality monitors above, and those reported on the [Department of Ecology's official page](#). This is because Ecology believes their method of calculating the air quality category (i.e. "Good", "Moderate", "Unhealthy", etc) is more protective of public health in Washington. If in doubt as to better represent public health risk, use the more stringent of the two (i.e. the map showing worse air quality).

[HOME](#) [WHERE'S THE FIRE?](#) [AIR QUALITY NOW](#) [SMOKE AND HEALTH](#) [LOCAL GOV](#) [WEBCAMS](#) [AIR QUALITY FORECASTING](#)

THURSDAY, SEPTEMBER 7, 2017

Washington State Smoke Forecast for Friday September 8, 2017

Washington State Smoke Forecast for Friday September 8, 2017
Forecast issued on Thursday September 7, 2017
Forecaster: R. Graw, USDA Forest Service

As of Thursday morning, there were 4 uncontained large wildfires burning in Washington, of which a number of these contained multiple fires. Figure 1 below illustrates the locations of the fires burning around the state. The three most active fires are Diamond Creek, Jolly Mountain, and Norise Peak.

Figure 1. Large Fire Map of Washington - Thursday morning, September 7, 2017

WE WANT TO HEAR FROM YOU!

We encourage you to post comments and questions on this blog so we can better serve you. To do so, click a link at the bottom of this post that may say "no comments." If there are no previous comments/questions, this will take you to a comment box where you can let us know what you think.

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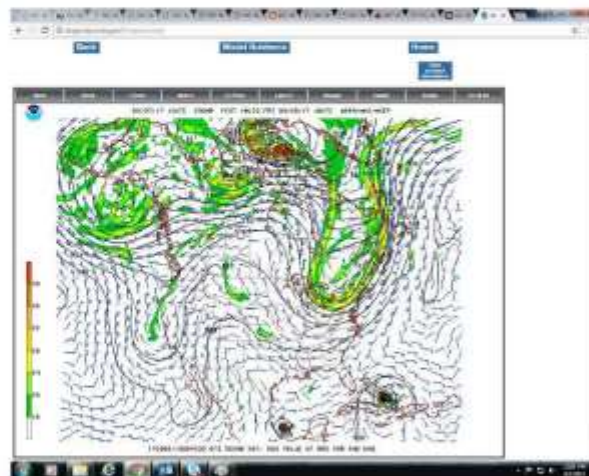
[WA Dept of Health FAQs](#)

<http://wasmoke.blogspot.com/search?updated-max=2017-09-08T06:57:00-07:00&max-res...> 10/4/2017



A cut-off low pressure system spinning off the coast of northern California will bring moisture and winds out of the south over much of the State on Friday as illustrated in Figure 2 below.

Figure 2. 500 mb map illustrating winds patterns at approximately 20,000 ft for Friday, September 8, 2017 at 11 am Pacific Time.



This will bring in some light precipitation into some parts of the state, as illustrated in Figure 3. Precipitation is expected in western Washington and over the Cascades and in southern Washington, as predicted by the University of Washington WRF-GFS 1.33 km meteorological model. Note the color bar below which relates colors to 1/100 of an inch of precipitation. Most locations can expect only about a trace to a 1/10 of an inch, including where many of the fires are located. This little amount of precipitation is not enough to put the fires out, and will do little to modify fire behavior significantly.

Figure 3. Model-Predicted 24-hour total precipitation for the period ending at 5 pm on Friday, September 8, 2017.

OTHER SMOKE BLOGS

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[Central Washington Smoke Outlook](#)

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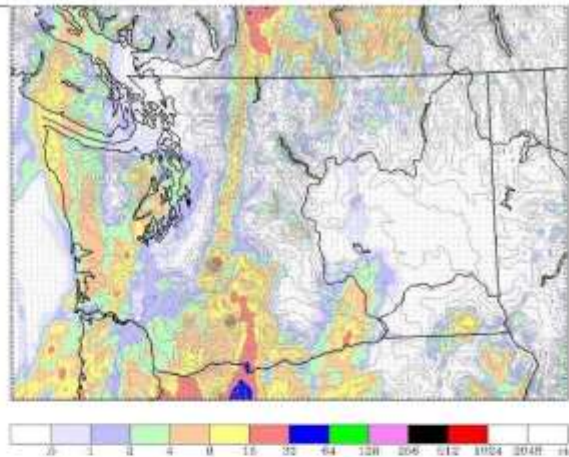
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[Friday Septemb.](#)

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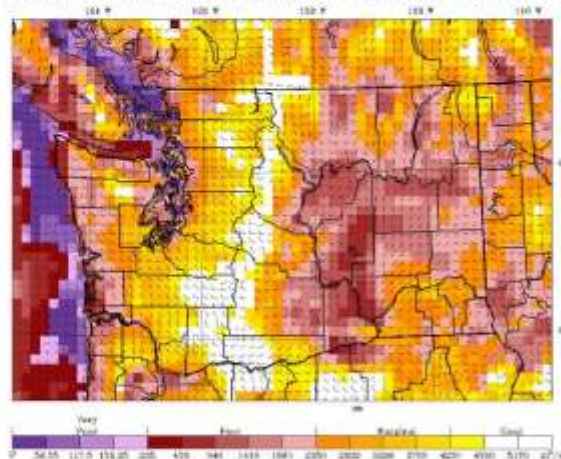
[Thursday Septemb.](#)

[Forecast: smoky with a chance of a](#)



Mixing tomorrow is expected to be good over the Cascades by marginal to poor elsewhere by 2 pm, as illustrated in Figure 4 below. The ventilation index is a combination of mixing height and horizontal wind speed in layer below. Note the poor ventilation expected over much of central and eastern Washington for tomorrow. Additionally the figure illustrates the surface level winds expected tomorrow. Westerly winds are expected over the western part of the state with speed of approximately 10 mph. Winds will be mixed and a bit lighter over central and eastern Washington.

Figure 4. Model-predicted Ventilation Index for Friday, September 8, 2017 at 2 pm Pacific Time.



According to the Severe Fire Weather Potential Mapping System, fire activity is expected to be high to severe over the fires tomorrow, as illustrated in Figure 5. Thus, smoke production and fire behavior is not expected to be damped by the forecasted precipitation.

Figure 5. Severe Fire Weather Potential for Friday September 8, 2017

School has started in some areas, if wildfire smokes...

Poor Air Quality Across Most of the Washington State Smoke Forecast for Monday-Tuesday...

Expect smoke in western WA Monday-Tuesday, smoke...

Kittitas and Yakima county getting hammered with sm...

Everyone's asking about the long weeks...

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PARTICIPATING AGENCIES

Washington Department of Ecology

Washington Department of Health

US Forest Service

County Health Departments in WA State

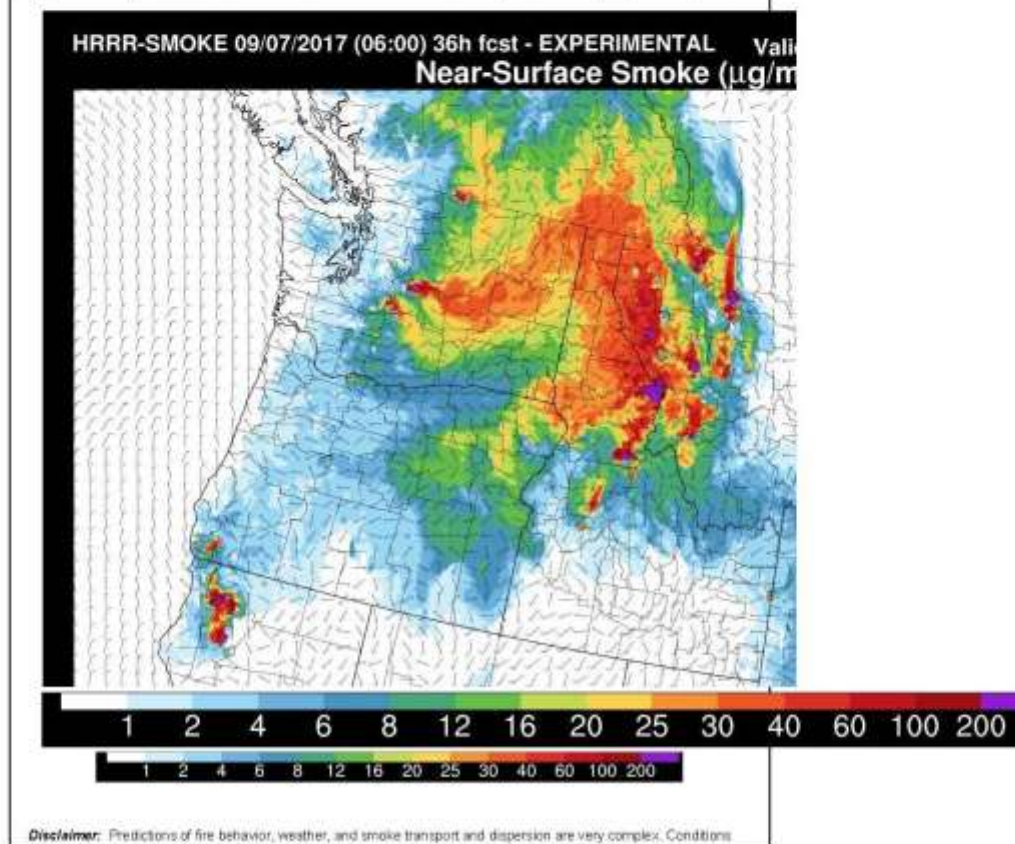
REPORTS

Air Quality Summary Report for the 2015 Pacific Northwest Fire Year



Given these conditions, the state-wide smoke pattern is expected to be as shown in Figure 6. Smoke is expected to be most dense in the immediate downwind vicinity of Diamond Creek, Jolly Mountain and Morse Peak fires and to the north east. Western, WA is expected to be the best location for good air quality tomorrow. However, once the nighttime inversion set up (around 8 pm), smoke from the fires will concentrate along the river drainages. Additionally, smoke can also be compressed and concentrated in areas such as eastern and northeastern Washington with the on set of the evening inversion as well.

Figure 6. Model-predicted Smoke Pattern and Concentrations for Washington on Friday, September 8, 2017.



<http://wasmoke.blogspot.com/search?updated-max=2017-09-08T06:57:00-07:00&max-res...> 10/4/2017

can and do change rapidly. As such, these forecasts are a best attempt at providing useful information. Graphics are used to try to communicate as much information as possible state-wide as not all areas can be discussed in the text.

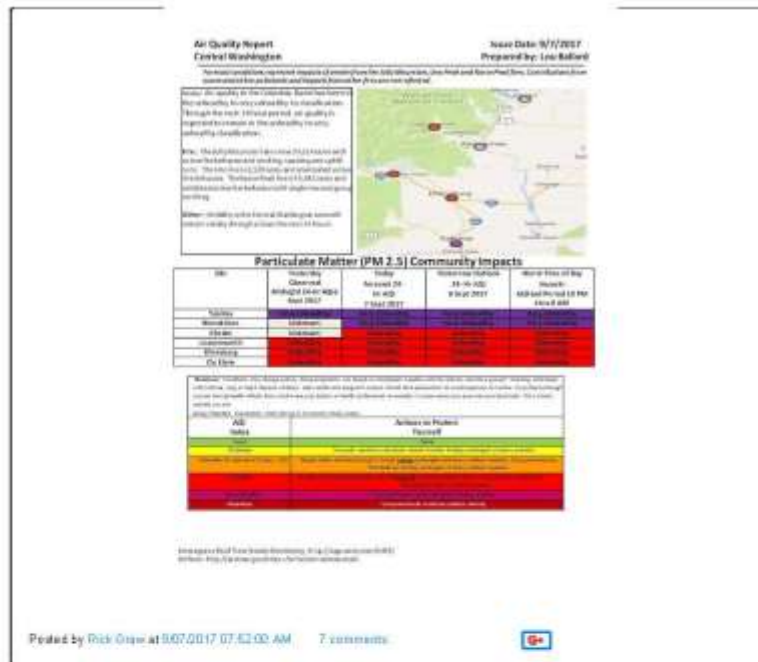
For additional information about smoke and fires in Central Oregon, please see the updates provided by the Air Resource Advisers on this smoke blog.

Posted by Rick Orise at 9/7/2017 01:01:00 PM 26 comments:



[Central Washington Smoke Update - Thursday September 7, 2017](#)

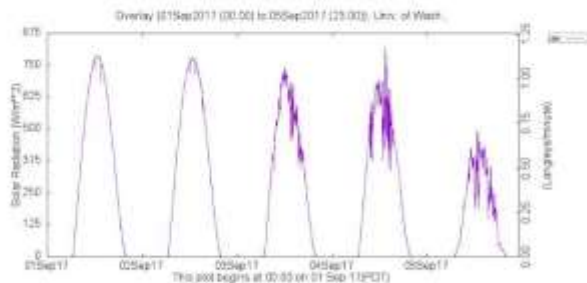
<http://wasmoke.blogspot.com/search?updated-max=2017-09-08T06:57:00-07:00&max-res...> 10/4/2017



WEDNESDAY, SEPTEMBER 6, 2017

Forecast: smoky with a chance of ashfalls

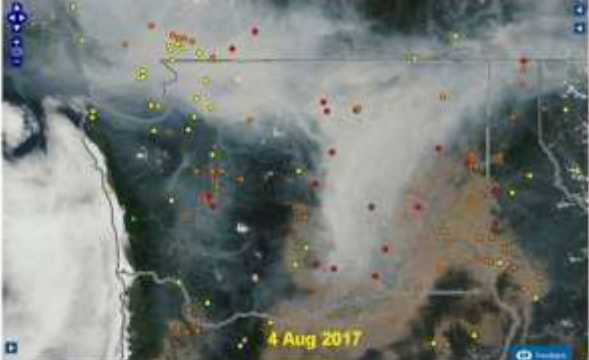
There was hardly a corner of the state that wasn't battered and bruised by smoke and ash yesterday. The smoke layer reduced maximum solar radiation intensity by almost 50% in Seattle, as seen in the following plot. Compare 1 and 2 Sept (sunny days in western WA) with 5 Sept.



Further, Ecology's air quality monitoring data website and the map of monitors above were feeling the strain of increased web traffic. Staff have been working overtime to restore and maintain services. If all else fails, [EPA's AirNow site](#) can serve as a backup.

Compare air quality yesterday (WA, OR and NT smoke) with a BC smoke episode last month

Colored dots are air quality conditions, with darker colors representing worse air. Satellite pictures were taken around 1:30PM. Spokane area air was bordering hazardous all day yesterday.



When will it all go away?
 Tomorrow for western WA. Not fast enough or complete enough for eastern WA.

- Western WA: Marine air starts to push in slowly this evening and it will be Thursday before western WA is able to flush out. Expect ash to stop falling by tomorrow.
- Eastern WA: The Montana smoke tap will be turned off by Thursday, so most of central and far eastern WA will 'improve' from Hazardous/Very Unhealthy to Unhealthy/Unhealthy for Sensitive Groups. It will be well into Friday before further improvements ripple through, but most areas will be downwind of fires in and around the Cascades, so Good air quality isn't on the immediate horizon.

How long will it STAY clean?
 Not long enough, it seems.

Airflow turns westerly after the flushing tomorrow. Few of the smoke models seem to be capturing the large pall of smoke hovering over the Pacific ocean.



Some of that smoke is likely to mix down into western WA on occasion but don't expect air to be much worse than Moderate in a few spots. Problem is that models are building another ridge of high pressure (= light winds and poor smoke dispersion) from Sunday- Tuesday. Don't yet know if east winds which brought smoke from the Cascades to western WA will be part of the calculus or not. Please stay tuned.

Finally, about the ash
 Many questions were raised about the toxicity of ash. Our toxicologist Dr Matt Kadlec confirmed that ash from forest matter is basic (pH = 9) and does contain heavy metals and PAHs. It can cause skin/ eye irritation. However these particles are far too large to be inhaled and fine particle pollution measured by air quality monitors are a far more serious health concern. Besides, ash has not and will not accumulate in sufficient depths in our cities to put people at risk when cleaning it up.

Posted by Rami Channappan - WA Ecology at 9:06 AM 2017-08-05 06:49:30 AM 10 comments

<http://wasmoke.blogspot.com/search?updated-max=2017-09-08T06:57:00-07:00&max-res...> 10/4/2017

TUESDAY, SEPTEMBER 5, 2017

School has started in some areas, the wildfire smoke information below can help you make decisions to keep everyone at school safe.

- Check news, social media and local reports for the latest air quality status.
- It is up to the school district or school to cancel or move outdoor activities when the air quality is poor. Use the [Air Pollution and School Activities Guide \(PDF\)](#) to help make those determinations.

Inhaling smoke is not good for anyone, even healthy people. Everyone should follow these recommendations:

- Avoid physical activity outdoors when conditions are "unhealthy", "very unhealthy" or "hazardous."
- Keep doors and windows closed but be mindful of hot weather. Run air systems/AC on recirculate and the close fresh-air intake. See the [Improving Ventilation during Wildfire Smoke Events \(PDF\)](#) guide.
- Take extra care if you have a heart or lung condition, diabetes, are pregnant or over 65, as well as infants and children. Seek medical attention if the smoke is affecting your health.
- For more information: www.doh.wa.gov/wildfireadvice
 - Guidance for keeping indoor air cleaner. Be aware that having people close windows who do not have air conditioning may pose health risks for overheating.
 - "Wildfire Smoke and Face Mask Fact Sheet". It's important to wear the right kind of mask. Face masks do not work well on small children or people with beards. We recommend that people with pre-existing heart and lung conditions consult a health care provider about using a mask because wearing a mask can make it more difficult to breathe.

Posted by Teresa Lutz, WA Dept. of Health at 9:06:00 PM 01-07-08 PM 5 comments



Poor Air Quality Across Most of the State!

Smoke from Montana fires has caused hazardous air quality in eastern WA and it won't improve much over the next couple days. Although air quality is better in Western WA, the big fires in the Cascades (Jolly Mountain Fire near Cle Elum and the Horse Peak fire near Chinook Pass) are providing smoke that, combined with winds from the east, is making its way into the Puget Sound area. Air quality in the Puget Sound area will likely drop to unhealthy today but clear out by Thursday.

Some of the local air quality mapping services have been having trouble keeping up with the traffic, but EPA's [AirNow](#) page is usually available.



There have been some concerns about ash particles that have deposited in Western WA not showing up on the air quality monitors. Keep in mind that the monitors measure fine particles, not larger particles like ash.

A recent satellite image (below) shows the huge swaths of smoke covering our state and neighbors. If you are in an area with smoky air, stay indoors if possible and set your A/C to recirculation. If you work outdoors and have adverse reactions to smoke, then you should consider staying indoors Tuesday through Thursday. Also consider wearing N95 face masks or making a trip to areas with cleaner air. Though, only the coast should expect decent air quality over the next couple days.



MONDAY, SEPTEMBER 4, 2017

Washington State Smoke Forecast for Monday -Tuesday September 4-5, 2017

Issued: Monday September 4, 2017

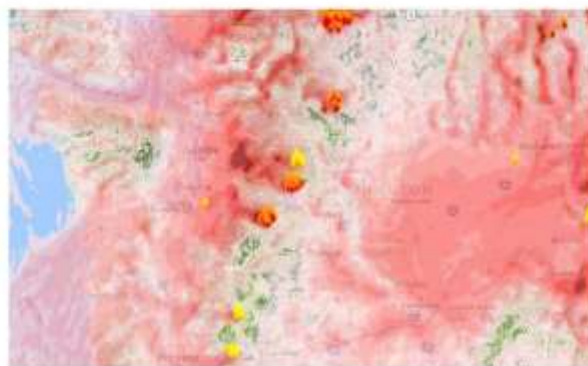
Forecaster: R. Graw, USDA Forest Service

A high pressure system will remain over the State today producing a subsidence inversion which will hold smoke in the lower part of the atmosphere today (<10,000 feet). Above the inversion, westerly winds will transport high levels of smoke and haze across central and eastern Washington. Below the inversion, easterly winds will transport smoke from the fires in British Columbia, Montana, and Idaho in eastern and central Washington, while smoke from the fires in the Cascades will be transported into the western portions of the state.

Figure 1 illustrates the overall fire locations (indicated by flames) and smoke pattern at ground level for the state today. The map is best interpreted in a relative, rather than absolute sense. The dark red indicates areas of heavier smoke and the higher shades of red (i.e., pink) indicate areas of lighter smoke. Because these are 24-hour averages, there will be differences at any given hour. Some locations may experience heavier concentrations of smoke for shorter durations such as in low-lying areas where smoke from the fires drains down valleys.

Smoke will likely start moving into the Seattle and surrounding metropolitan areas, and eastern portions of the State by early afternoon and will get more concentrated overnight with the onset of the evening temperature inversion, which will hold smoke closer to the ground.

Figure 1. Model-Predicted 24-hour Smoke Concentrations for Washington on Monday September 4, 2017




<http://wasmoke.blogspot.com/search?updated-max=2017-09-08T06:57:00-07:00&max-res...> 10/4/2017

Tuesday, September 5, 2017


Conditions remain much the same as Monday, except the thermal trough will strengthen throughout the day. Fire activity will likely increase due to the thermal trough, but also be tempered by the smoke. East winds underneath the subsidence inversion will persist through the day on Tuesday. Much of the state will continue experience smoke and haze, very similar to Monday's forecasted pattern.

Disclaimer: Weather and fire activity can change quickly. Please check back for updates to these forecasts as conditions change. If you're travelling out of Washington, many other states also have smoke blogs, including Oregon, Idaho, and California. So please consider those resources to help you plan your travels.

Posted by Risk Gove at 8:04/2017 11:50:00 AM 0 comments 

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Appendix G. Washington Ecology Twitter and Facebook Posting

10/12/2017

WA Dept of Ecology (@EcologyWA) | Twitter




1 7 4




WA Dept of Ecology • @EcologyWA · Sep 8

Good news! An all-green Western WA is expected later today and thru Sunday. Get air quality & wildfire updates at: bit.ly.com/WAsmoke17




4 25 43




WA Dept of Ecology • @EcologyWA · Sep 8

Smoke, smoke, every where smoke. PNW is smokiest in U.S. & Midwest is smothered too. Weekend smoke forecast: bit.ly.com/WAsmoke17




1 32 17




WA Dept of Ecology • @EcologyWA · Sep 7

Smoke isn't clearing soon enough in Western WA and it's worse east of the Cascades. @WADeptHealth is sharing info for those with kiddos.



WA Dept. of Health • @WADeptHealth

11 9




WA Dept of Ecology • @EcologyWA · Sep 7


8:30 a.m. - 10:00 a.m. 10/17 - 10/18 - 10/19 - 10/20 - 10/21 - 10/22 - 10/23 - 10/24 - 10/25 - 10/26 - 10/27 - 10/28 - 10/29 - 10/30 - 10/31 - 11/1 - 11/2 - 11/3 - 11/4 - 11/5 - 11/6 - 11/7 - 11/8 - 11/9 - 11/10 - 11/11 - 11/12 - 11/13 - 11/14 - 11/15 - 11/16 - 11/17 - 11/18 - 11/19 - 11/20 - 11/21 - 11/22 - 11/23 - 11/24 - 11/25 - 11/26 - 11/27 - 11/28 - 11/29 - 11/30 - 12/1 - 12/2 - 12/3 - 12/4 - 12/5 - 12/6 - 12/7 - 12/8 - 12/9 - 12/10 - 12/11 - 12/12 - 12/13 - 12/14 - 12/15 - 12/16 - 12/17 - 12/18 - 12/19 - 12/20 - 12/21 - 12/22 - 12/23 - 12/24 - 12/25 - 12/26 - 12/27 - 12/28 - 12/29 - 12/30 - 12/31

https://twitter.com/EcologyWA?ref_src=twsrc%5Etfw&ref_url=http%3A%2F%2Fwww.ecology.wa.gov%2F

16/26




14 5




WA Dept of Ecology • @EcologyWA · Sep 6

We hope this one goes without saying.



weDNR_fire • @waDNR_fire


13



WA Dept of Ecology • @EcologyWA · Sep 6

Whoa! Images show the smoke blanket compared to last month. New forecast shows only slight improvements on the way: wasmoke.blogspot.com/2017/09/foreca...


4 99 53



WA Dept of Ecology • @EcologyWA · Sep 5


Got kids in school? @WADeptHealth posted wildfire info at bitly.com/WAsmoke17 #wawildfires

7 7



WA Dept of Ecology • @EcologyWA · Sep 5

Smoke choke the sequel. Smoke forecast: same for next 2 days. Get air quality info & forecasts at wasmoke.blogspot.com #WaWildfire



WA Dept of Ecology (@EcologyWA) · Sep 5
WA awoke to ash-covered cars and smokey skies. Air quality is unhealthy in many areas. Check health info & forecast; wasmoke.blogspot.com

WA Dept of Ecology (@EcologyWA) · Sep 4
Almost all of WA is awash in wildfire smoke today. wasmoke.blogspot.com/?m=1

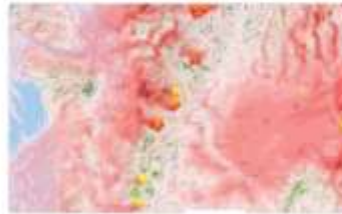
WA Dept of Ecology (@EcologyWA) · Sep 4
Sorry, too much love for our air monitoring web map. Zoom to WA on this: tools.airfire.org/monitoring/v3/

WA Dept of Ecology (@EcologyWA)



WA Dept of Ecology • @EcologyWA · Sep 4

Together in the soup: All WA getting smoke from another state or county. Pic: a forecast map. Tue: more like this, wasmoke.blogspot.com/2017/09/washin...



32

16

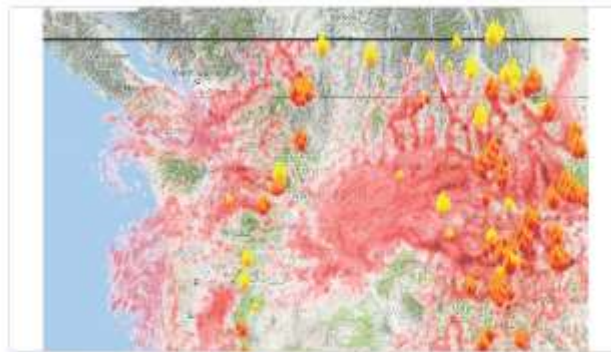


WA Dept of Ecology Retweeted



Ecology NW - Larry @ecyseattle · Sep 4

Westward ho! East winds bringing E WA wildfire smoke to W WA. Idaho smoke giving E WA no break. fortress.wa.gov/ecy/enviwa/Def...



WA Dept of Ecology



30

13



WA Dept of Ecology • @EcologyWA · Sep 3

Wildfire smoke: No let-up soon in E WA. Expected Mon, Tue in W WA. Details? Plenty in this forecast: wasmoke.blogspot.com/2017/09/expect...



WA Dept of Ecology



52

27



WA Dept of Ecology • @EcologyWA · Sep 3

https://twitter.com/EcologyWA?ref_src=twsrc%5Etfw&ref_url=http%3A%2F%2Fwww.ecology.wa.gov%2F

20/26



Cathy D. Kuhl, Rob Johnson, Kaitlyn Whetstone and 16 others like this. Chronological

4 Shares



Gina Miller Nick Pierce

23m



Washington Department of Ecology

September 11, 2017

Smoke has mostly cleared out for now. The air quality forecast thru Tue. is:
 Western and Central Washington = good
 Spokane = good & moderate
 For more updates, visit the wildfire inter-agency website:
<http://bitly.com/WASmoke17>



Rob Johnson, Kaitlyn Whetstone, Sulaman Ajwal and 25 others like this. Chronological

11 Shares

See more of Washington Department of Ecology on Facebook

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or



Sandra Dument Good here? Ha, I think not! 😊


23m




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Derek Young Still brutal in Cle Elum, improving in Ellensburg. When the schools are canceling athletics it's not yet there.

20m


Washington Department of Ecology
September 8, 2017 ·


Good news! An all-green Western Washington is expected later today through Sunday. Get air quality and wildfire updates at: <http://billy.com/WASmoke17>





Tina Elzer, Rastien Star and 106 others like this.
Chronological

27 Shares


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Jennifer Simok Hunt You!!! Hoping it improves for other areas.
30m



Mikael Keesee It will go green long enough for those affected just to start getting better and then it will shift again. Im over it - bring on the rain.
30m


Washington Department of Ecology shared Washington State Department of Health's post.
September 7, 2017 ·

The smoke isn't clearing soon enough in Western Washington and it's worse east of the Cascades. The Department of Health has tips for those with kiddos.


Washington State Department of Health
September 7, 2017 ·

Attention: Parents in areas with wildfire smoke: Special precautions are needed to protect your children's health. Read this: http://www.pedso.net/.../facts/wildfire_acute_2011_parents_co...




Information on Health Risks of Wildfires for Children

#PEBSUNET

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Rachel Moley, Dana de Leon, Raven Thompson and 13 others like this.
Chronological

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Forecast: smoky with a chance of ashfalls

There was hardly a corner of the state that wasn't battered and bruised by smoke and ash yesterday. The smoke layer reduced maximum solar ra...

WASMOKE.BLOGSPOT.COM

Rory O'Rourke, Tani Healey, Candace TO and 17 others like this. Chronological

40 Shares

Sofia Gidlund Geoff Gullyery
37w

McKenzie Swiger Christopher Swiger
37w

1 Reply

Washington Department of Ecology added 2 new photos.
September 5, 2017

One of our inspectors shot these rather unusual photos today of wildfire ash that got caught up oil containment boom in the Columbia River at the Vancouver, WA, Terminal. The oil boom was not set for an active spill, it was set as a normal protocol to protect the river because fuel was being transferred. It's a good visual of how oil containment boom works. #wawildfires

Trevor Quinlan, Anna Hallingstad, Oregon DES and 6 others like this.

1 Share

Washington Department of Ecology
September 5, 2017

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... air quality has now reached harmful to hazardous levels in many areas of the state. Smoke from Montana and SE British Columbia fires funneled into Eastern Washington and smoke from the Jolly Mountain fire reflecting down and Western Washington. Check current air quality conditions at <http://tully.com/WAAsmoke17>

Log In



Ray Brooks, Alesia Amund and 30 others like this

Chronological

256 Shares

View 7 more comments



Kimberly Adams It's kinda nasty alright! It's been sort of twilight-like all day. You can smell the smoke, so it's pretty dense.

31w



Wayne Rivison Has to really be bad for people with lung problems. Scary to see this kind of stuff.

31w



Washington Department of Ecology shared Washington Conservation Corps's post.

September 1, 2017 ·

Usually, when our Washington Conservation Corps crews respond to a flood, they're filling sandbags or picking up debris. In Austin this week, WCC is indoors, helping FEMA set up recovery and donation centers for people displaced by #Harvey. There's still a huge amount of work ahead, though, as we pull together to help Houston and neighboring communities recover.



Washington Conservation Corps is with Dillon Bantuz.

August 31, 2017 ·

Here's a peek at our WCC #KwanCorps members and staff responding to #HurricaneHarvey: busy setting up shop, collecting information, and collaborating with others.

See More

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Kyle Winter, Wanda Hest, Cathy, Shanon Leonard and 23 others like this

Chronological

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Suzanne Dahl-Cumpler Thank you for your good work

31w

Kathy McIntyre Ameri Corps is an outside program. Thanks, team!
21w

Washington Department of Ecology
September 1, 2017 ·

All weather conditions are favoring more smoke this weekend. Let's hope we get some rain in the forecast soon! Read more on our blog.



Every1's askin' about da long weekend

Let's take it one day at a time, because conditions won't remain the same everyday. Except near the fires where it will be cruddy all along...

WASMOKE.BLOGSPOT.COM

Bulmarin Auzol, Nicole Marboute, Pam Iong Lalman and 6 others · Chronological
like this

4 Shares

View 2 more comments

Sandra Dument Praying a gentle rain!
21w

Coni Jones Carothers I appreciate your reports as I have asthma. I hope everyone stays safe, especially firefighters & homeowners.
21w · Edited

Washington Department of Ecology shared Washington Department of Fish & Wildlife's post.
August 30, 2017 ·

Washington Department of Fish & Wildlife
August 30, 2017 ·

Thanks again to all of the anglers who are helping recover escaped Atlantic salmon.

Ahead of the Labor Day weekend, we want to share a few updates:

* Anglers s...

See More



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Victoria

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